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GEOLOGICAL THEORY IN BRITAIN.*

THE presidential address for the current year, delivered by Professor Huxley to the Geological Society, demands a careful attention, not merely because of its ability and incisiveness, but especially on account of the importance of the issues involved. We propose to follow up some of the lines of inquiry therein suggested, and to test the present condition of geological theory in Britain by bringing to bear upon it the light derived from discoveries in other fields of investigation. Geology, indeed, the youngest born of the sciences, has suffered much, as well as gained much, from the special character of the labors of her followers. If

during the last thirty years she has gained enormously by the strictness with which one section of her votaries have interpreted the past history of the earth by their own experience of its present condition, she has also lost greatly by isolation from other sciences. The light thrown on the ancient constitution of the earth by the present state of extra-terrestrial matter has been persistently ignored in this country, and geologists of the more popular school have practically assumed that our orb has ever been and will ever be very much as it is now. And are we to believe, with the poet Ovid, that although changes are continually going on, the whole order of nature remains constant? or is there evidence of a never-ending cycle of change? or, again, is there any proof of a definite progress somewhere, somewhither? These weighty questions are involved in the discussion of geological theory.

Professor Huxley tells us that he comes

* ART. II.—1. Address of Prof. T. H. Huxley, LL.D., F.R.S., President to the Geological Society of London. Feb. 19, 1869.

2. *Experiences synthétiques relatives aux Météorites*. Par M. A. DAUBRÉE. 8vo. Paris: 1868.

3. *Spectrum Analysis*. By H. E. ROSCOE, B.A., Ph.D., F.R.S., Professor of Chemistry in Owen's College, Manchester. 8vo. London: 1869.

forward as the geological attorney-general for the time being, to plead against the charge made by the eminent physicist Sir William Thomson,* "that a great reform in geological speculation seems now to have become necessary." "It is quite certain that a great mistake has been made, that British popular geology at the present time is in direct opposition to the principles of natural philosophy." These grave charges are based on the assumption that the geologist demands unlimited time for the explanation of the phenomena manifested by the rocks, while, on the other hand, the tidal retardation of the earth, by which its revolution on its axis is checked by the attraction of the sun and moon, renders it impossible for life to have existed on the earth more than some such period of time as one hundred million years. According to the observed rate of retardation, the earth must then have been revolving so fast that no life could have existed on its surface. A second argument is found in a calculation of the age of the solar heat, in which, according to the present rate of emission, the sun could not have illumined the earth for more than from one million to five hundred million years; and a third, on a secular cooling of the earth, from which the conclusion is drawn that from fifty to three hundred millions of years ago the earth was sufficiently heated to become molten at the surface. Such are the grounds on which Sir William Thomson founds his attack.

It is undoubtedly true that from the loose way in which some eminent writers speak of geological time, Sir William Thomson is justified in recording his protest. Mr. Darwin, for instance, demands no less than three hundred million years for the erosion of the Wealden area between the chalk ranges of the North and South Downs; while the late Professor Jukes thought that it is just as likely that Mr. Darwin's estimate, multiplied by ten, may be true. Professor Phillips, on the other hand, is contented with three hundred thousand years for the production of the same results, assuming that the rate of erosion is one inch per annum. Sir William Thomson is right, in our opinion, for attacking speculations

such as these, and the idea of boundless time in the past, but he errs in assuming that there is any necessary connection between his limit of years and any geological theory whatever.

Professor Huxley pleads for his clients at the bar of public opinion with remarkable force and ability. He first of all takes for granted that the earth has only been habitable during either 100,000,000 or 500,000,000 years, and then admits that the smaller estimate is quite sufficient to account for all geological phenomena by the operation of the present natural causes.

"I presume that 100,000 feet may be taken as a full allowance for the total thickness of stratified rocks containing traces of life; 100,000, divided by 100,000,000 = 0.001. Consequently the deposit of 100,000 feet of stratified rock in 100,000,000 years means that the deposit has taken place at the rate of $\frac{1}{1000000}$ of a foot, or say, $\frac{1}{1000}$ of an inch, per annum.

"Well, I do not know that any one is prepared to maintain that, even making all needful allowances, the stratified rocks may not have been formed, on the average, at the rate of $\frac{1}{1000}$ of an inch per annum. I suppose that if such could be shown to be the limit of world-growth, we could put up with the allowance without feeling that our speculations had undergone any revolution. And perhaps after all, the qualifying phrase, 'some such period,' may not necessitate the assumption of more than $\frac{1}{1000}$, or $\frac{1}{10000}$, or $\frac{1}{100000}$ of an inch of deposit per year, which of course would give us still more ease and comfort.

"But it may be said that it is biology, and not geology, which asks for so much time—that the succession of life demands vast intervals; but this appears to me to be reasoning in a circle. Biology takes her time from geology. The only reason we have for believing in the slow rate of the change in living forms is the fact that they persist through a series of deposits which geology informs us have taken a long while to make. If the geological clock is wrong, all the naturalist will have to do is to modify his notions of the rapidity of change accordingly. And I venture to point out, that when we are told that the limitation of the period during which living beings have inhabited the planet to one, two, or three hundred million years requires a complete revolution in geological speculation, the *onus probandi* rests on the maker of the assertion, who brings forward not a shadow of evidence in its support."

This reasoning is clear and crushing so far as it goes, but it involves an assumption which cannot fairly be granted. Professor Huxley speaks as if the depo-

* On Geological Time. Trans. Geol. Glasgow, vol. iii.

sition of $\frac{1}{33}$ or $\frac{1}{333}$ of rock could be said to have been deposited year after year, without break and without intermission. If there be one thing proved more than another, it is that there is an interval of time between any two strata in juxtaposition. That rocks are deposited in different strata implies a break of continuity. The same fact is brought more vividly to notice by the presence of one rock on the upturned waveworn edges of another, such as may be seen in many Silurian localities, and especially in the Coal Measures and overlying strata in Somersetshire. These breaks have been proved by Professor Ramsay to represent an indefinite lapse of time, which in some cases must have been very considerable. The rocks, moreover, as we find them now, are confessedly the mere rags and tatters of those that have been, and do not represent in any sense whatever a perfect and unbroken sequence. To what extent the present strata are representatives of the entire series we do not know, and until accurate knowledge on this point can be gained, it is idle to divide their total thickness by any hypothetical number of years. The breaks in the succession may or may not represent a lapse of time as great as that during which the existing strata were formed. Sir William Thomson's limit of years therefore cannot be tested by a mere sum in division. So far as the geological evidence goes we are in profound ignorance of the lapse of time represented by the stratified rocks; they are as likely to have been deposited in one million as in five hundred millions of years. Sir William Thomson has not proved that his allowance of time is too small for the geologists, nor has Professor Huxley proved it to be sufficient for them in his argument which we have quoted.

Professor Huxley, however, carries the war successfully into his opponent's camp, by showing that the eminent mathematicians and physicists are by no means agreed as to the cause of tidal retardation, or that the sun is a mere cooling body, like a hot brick, without the power of renovation, or that the cooling of the earth may not have been retarded by an atmosphere containing more aqueous vapor than our own. Until all these questions are finally settled, it seems to us that any speculation as to the age of

the earth based on purely mathematical considerations must be worthless. At present there are no data for their solution.

The principal ground of difference between Sir William Thomson and the geologists is the relation of geological time to our unit of years. If we use the term Silurian epoch, we merely refer to that indefinite interval between the Cambrian and the Devonian periods, during which, or a portion of which, the Silurian rocks were being deposited, not to an exact and well-defined period, like the reign of William the Conqueror. The geological "when" simply means before and after certain observed phenomena, while the historical involves also the idea of how long before and how long after. The use of years as a means of reckoning the past, therefore, is merely co-extensive with the range of history. Who, for example, would dream of fixing the date of the arrival of the stone or bronze folk in Europe? If, then, years cannot be made use of in the computation of events that happened in the period immediately outside history, how can they be used in estimating the lapse of time between even the latest geological epoch and the present day? Sir William Thomson, in his attempt to limit the duration of life on earth to a maximum of five hundred million years, errs precisely in the same way as Mr. James Croll,* in his calculation of the date of the glacial period. All such attempts to gauge the geological past by years can only end in vanity and vexation of spirit.

We will now pass to the examination of Professor Huxley's definition of the present state of geological theory. There are three great schools of geological thought, each of which is more or less antagonistic to the other two—Catastrophism, Uniformitarianism, and Evolutionism. The first of these accounts for all geological phenomena by "the operation of forces different in their nature or immeasurably different in power, from those that we see in action in the universe. The doctrine of violent upheavals of mountains, of the sudden depression of continents, of universal cataclysms, and the like, is catastrophic, in so much as it assumes that the forces by

* Phil. Mag. 1865-6.

which they were brought about were more intense than, or different from, any of those which we now experience. The Hindoo, the Egyptian, and the Mosaic cosmogonies may be quoted as examples as well as that of the Stoics. During the sixteenth, seventeenth, and eighteenth centuries this method of accounting for geological phenomena was almost universal, and at the present time it is undoubtedly the most popular on the continent of Europe. Among the most eminent of its exponents in modern times may be reckoned Baron Humboldt, M. Elie de Beaumont, Professor Sedgwick, and Sir Roderick Murchison.

"The crust and outline of the earth" (writes the latter, in the last edition of his *Siluria*), "are full of evidences that many of the ruptures and overthrows of the strata, as well as great denudations, could not, even in millions of years, have been produced by agencies like these of our own times . . . We further maintain that no amount of time (of which no true geologist is ever parsimonious when recording the history of bygone accumulations of sediment, or of the different races of animals they contain) will enable us to account for the signs of many great breaks and convulsions which are visible in every mountain chain, and which the miner encounters in all underground workings."

This may be taken as a fair exposition of the catastrophic creed.

The second or the uniformitarian, is the doctrine of Hutton and Lyell, by which all phenomena in the past history of the earth are ascribed to forces identical in nature with, and not more energetic than, those now active on the face of the earth. From this point of view the forces that are now bringing about changes so gradually that they almost escape observation, are adequate to produce the most stupendous geological results in unlimited time. Things have remained during the remote past very much as we have known them during the last two or three thousand years, and the equilibrium of nature has not been destroyed, although local changes have taken place. According to Hutton, there is no physical evidence "of a beginning—no prospect of an end." And in this he is followed by the great apostle of the Uniformitarian school, Sir Charles Lyell.

"As geologists, we learn that it is not only the present condition of the globe which has

been suited to the accommodation of myriads of living creatures, but that many former states also have been adapted to the organization and habits of prior races of beings; the disposition of the seas, continents, and islands, and the climates have varied; species likewise have been changed; and yet they have been so modelled on types analogous to those of existing plants and animals as to indicate throughout a perfect harmony of design and unity of purpose. To assume that the evidence of beginning or end of so vast a scheme lies within the reach of our philosophical inquiries, or even of our speculations, appears to be inconsistent with a just estimate of the relations which subsist between the finite powers of man and the attribute of an infinite and eternal Being."*

We fully endorse Professor Huxley's criticism on this passage:—

"Why for all time must the geologist be content to regard the oldest fossiliferous rocks as the ultima thule of his science, or what is there inconsistent with the relations between the finite and the infinite mind, in the assumption that we may discern somewhat of the beginning, or of the end, of this speck and space we call our earth? . . . This attempt to limit at a particular point the progress of inductive and deductive reasoning from the things which are to those which were—this faithlessness to its own logic, seems to me to have cost uniformitarianism the place, as the permanent form of geological speculation, which it might otherwise have held."

There can be no doubt that this doctrine has been mainly instrumental in raising geology to the rank which it now occupies among the sciences, and that the law of rigid induction which it inculcates has led to most important results; but it seems to us that the time during which we have been able to observe existing phenomena is too short for a sweeping generalization as to those which have happened in the immeasurable past. As catastrophism has erred in not exhausting the known causes, before flying to the unknown, so uniformitarianism has erred in another direction in ignoring all speculation of a state of things on this earth different from that which we experience at the present day. Both Sir Charles Lyell and Hutton have fixed their eyes so intently on the stratified rocks that they have omitted to notice any condition of things which existed before those rocks were formed:—

"The astronomer," writes the former, "may

* Principles of Geology, 10th edit. vol. ii. p. 613.

find good reasons for ascribing the earth's form to the original fluidity of the mass in times long antecedent to the first introduction of living beings into the planet; but the geologist must be content to regard the earliest monuments which it is his task to interpret as belonging to a period when the crust had already acquired great solidity and thickness, probably as great as it now possesses. and when volcanic rocks, not essentially differing from those now produced, were formed from time to time, the intensity of volcanic heat being neither greater nor less than it is now."*

In another passage, however, he seems to admit that the earth was at one time fluid, and thus he accounts for its present internal heat; but he merely devotes one short paragraph in the last edition of the *Principles*† to this most important subject. He seems moreover to trust to the renovating powers of nature for the restoration of the heat which is radiated from the earth, and he throws out the suggestion that it may be restored by electrical forces—a suggestion which is equivalent to saying that the earth's loss by radiation is made up by the access of heat from without, since by Mr. Grove's experiments it has been shown that light, heat, electricity, and motion are convertible terms. Sir Charles Lyell himself would, we are sure, be very unwilling to maintain this last proposition. If the original molten condition of the earth be admitted, as we believe it must be, the uniformitarian doctrine cannot be maintained in its entirety. If, on the other hand, we refuse to recognize any condition of things existing on this earth different from that in which we now live, we not only shut ourselves off from all considerations of the origin of our planet, but also from some of the more interesting and valuable deductions of modern physics. "Inasmuch," argues Sir William Thomson, "as energy is being continually lost from the earth by conduction through the upper strata, the whole quantity of plutonic energy must have been greater in past times than in the present."‡ The uniformitarian critic, in the "*Quarterly Review*," gets over this difficulty by the device of comparing the earth to a man-of-war, and its store of potential energy to the

magazine, and he proceeds to show that the gun loaded with the last charge of powder in the ship may possibly be as effective as that fired with the first. It is undoubtedly true, that the quantity of powder in store does not influence the fire of the guns, but we fail to see how that fact bears on the energy stored up in the earth. Were the actual terrestrial energy as completely isolated from the potential as the charge in the gun from the powder in the magazine, the analogy might hold good. Since, however, we have no reason for believing that this is the case, we must look upon the argument as an ingenious attempt to kick a stumbling block out of the uniformitarian path. We shall adduce geological evidence that the terrestrial energy was greater in the past than it is now, in discussing the third great geological school, although in the survey of the stratified rocks there be no direct proof of its diminution.

Catastrophism is, according to Professor Huxley, the doctrine of a past era in geological inquiry; uniformitarianism, that of the present; while to the third, or evolutionism, he assigns the high honor of being that of the future. The evolutionists of the present day are few in number but eminent in reputation. Dr. Tyndall, Mr. Herbert Spencer, Professor Huxley, and Sir William Thomson may be quoted as the most prominent leaders in England. The doctrine of the origin of species is indeed merely evolutionism applied to biology, and so far Mr. Charles Darwin may also be considered to belong to this school. Its founder was the great Emanuel Kant, whose work in physical science is only now beginning to be duly recognized:—

"Kant (writes Prof. Huxley) expounds a complete cosmogony, in the shape of a theory of the causes which have led to the development of the universe from diffused atoms of matter endowed with simple attractive and repulsive forces.

"'Give me matter,' says Kant, 'and I will build the world;' and he proceeds to deduce from the simple data from which he starts, a doctrine in all essential respects similar to the well-known 'Nebular Hypothesis' of Laplace. He accounts for the relation of the masses and the densities of the planets to their distances from the sun, for the eccentricities of their orbits, for their rotations, for their satellites, for the general agreement in

* *Principles*, vol. ii. p. 211. † Vol. ii. p. 227.

‡ *Of Geological Dynamics*, p. 21. (Trans. Geol. Soc. Glasgow.)

the direction of rotation among the celestial bodies, for Saturn's ring, and for the zodiacal light. He finds in each system of worlds indications that the attractive force of the central mass will eventually destroy its organization by concentrating upon itself the matter of the whole system; but, as the result of this concentration, he argues for the development of an amount of heat which will dissipate the mass once more into a molecular chaos such as that in which it began.

"Kant pictures to himself the universe as once an infinite expansion of formless and diffused matter. At one point of this he supposes a single centre of attraction set up, and by strict deductions from admitted dynamical principles shows how this must result in the development of a prodigious central body surrounded by systems of solar and planetary worlds in all stages of development. In vivid language he depicts the great world-maelstrom widening the margins of its prodigious eddy in the slow progress of millions of ages, gradually reclaiming more and more of the molecular waste, and converting chaos into cosmos. But what is gained at the margin is lost in the centre; the attractions of the central systems bring their constituents together, which then by the heat evolved are converted once more into molecular chaos. Thus the worlds that are, lie between the ruins of the worlds that have been and the chaotic materials of the worlds that shall be; and in spite of all waste and destruction Cosmos is extending his borders at the expense of Chaos."

Kant then proceeds to apply his views to the earth by an appeal to the "gradual changes now taking place," by earthquakes, by marine and fresh-water action, by the winds and frosts, and finally by the operations of man. In common with Lyell and Hutton, he argued from the present order of things to the past, using, so far as the knowledge of his day would allow, the uniformitarian doctrine:—

"With as much truth as Hutton, Kant could say, 'I take things just as I find them at present, and from these I reason with regard to that which must have been.' Like Hutton, he is never tired of pointing out that 'in nature there is wisdom, system, and constancy.' And as in these great principles, so in believing that the cosmos has a reproductive operation 'by which a ruined constitution may be repaired,' he forestalls Hutton; while, on the other hand, Kant is true to science. He knows no bounds to geological speculation but those of the intellect. He reasons back to a beginning of the present state of things; he admits the possibility of an end."

Professor Huxley is perfectly justified in his high estimate of Kant as the founder of the system of evolution, although the advance of modern science renders some of the views of the latter untenable.

These three schools of geological speculation are not necessarily antagonistic:—

"Catastrophism has insisted upon the existence of a practically unlimited bank of force, on which the theorist might draw; and it has cherished the idea of the development of the earth from a state in which its form, and the forces which it exerted, were very different from those we now know. That such difference of form and power once existed is a necessary part of the doctrine of evolution.

"Uniformitarianism, on the other hand, has with equal justice insisted upon a practically unlimited bank of time, ready to discount any quantity of hypothetical paper. It has kept before our eyes the power of the infinitely little, time being granted, and has compelled us to exhaust known causes before flying to the unknown.

"To my mind there appears to be no sort of necessary theoretical antagonism between Catastrophism and Uniformitarianism. On the contrary, it is very conceivable that catastrophes may be part and parcel of uniformity. Let me illustrate my case by analogy. The working of a clock is a model of uniform action; good time-keeping means uniformity of action. But the striking of the clock is essentially a catastrophe; the hammer might be made to blow up a barrel of gunpowder, or turn on a deluge of water; and, by proper arrangement, the clock, instead of marking the hours, might strike at all sorts of irregular intervals, never twice alike in the intervals, force, or number of its blows. Nevertheless all these irregular and apparently lawless catastrophes would be the result of an absolutely uniformitarian action; and we might have two schools of clock-theorists, one studying the hammer and the other the pendulum.

"Still less is there any necessary antagonism between either of these doctrines and that of Evolution, which embraces all that is sound in both Catastrophism and Uniformitarianism, while it rejects the arbitrary assumptions of the one and the as arbitrary limitations of the other. Nor is the value of the doctrine of evolution to the philosophic thinker diminished by the fact that it applies the same method to the living and not-living world, and embraces in one stupendous analogy the growth of a solar system from molecular chaos, the shaping of the earth from the nebulous cubhood of its youth, through innumerable changes and immeasurable ages, to its

present form, and the development of a living being from the shapeless mass of protoplasm we term a germ."

The doctrine of Evolution thus eloquently advocated by Professor Huxley is remarkable for its simple explanation of the complex phenomena of the outer world. We shall proceed to test its value by an appeal to well-ascertained geological, physical, and astronomical facts, throwing aside all cosmogonies as mere matters of speculation which may or may not be true.

What do we actually know of the condition of the interior of the earth at the present day? After passing down through "the veil of the stratified rocks" more than ten miles in thickness, we suddenly arrive at the crystalline granites and granitoid series, that bear unequivocal traces of having been once in a molten state. These are found all over the earth at the base of the sedimentary series, and present everywhere, as the great Humboldt observes, the same essential mineralogical forms, and therefore the conditions under which they originated must have been the same universally. They are proved not only by the cavities filled with vitrified matter, found in their component crystals by Mr. Sorby, to have been formerly heated to high degree, but also by the metamorphism of the strata immediately overlying them, such as the change of shale into mica schist, and of limestone into marble. The increase of temperature universally observed in the descent of mines, as well as the phenomena manifested by volcanoes and hot-springs (that of Bath is 118 degrees), testify to a continual flow of caloric from the centre towards the circumference of the earth, and prove that at some point deep down the heat is sufficiently intense to fuse all known substances. According to Sir Charles Lyell, the increase of one degree for every sixty-five feet of descent would be sufficient to boil water at a depth of two, and melt iron at a depth of thirty-four, miles. If then we follow Professors Phillips and Bischoff in ignoring the effect of pressure on the fusing points of the different elements, a greater thickness than thirty or forty miles cannot be assigned to the solid crust of the earth, which must rest everywhere on matter kept fluid by intense heat. But we have

no right to do this, since it has been proved by actual experiment that some substances, such as water and sulphur, can absorb an enormous quantity of heat under pressure without passing into the liquid or gaseous condition. Now the gravitating force exerted by thirty or forty miles of solid rock must be enormous, and the deeper we go the greater it will be; and, therefore, unless it can be proved that the increase of the expansive power of the heat preponderates over the compressing power of gravitation, the existence of a molten zone everywhere supporting a solid crust cannot be inferred. If the pressure preponderate, as Mr. Scrope believes, the earth may be solid to its very core. By this line of inquiry therefore we can only safely infer that the interior of the earth is heated to an inconceivable degree, and as we do not know the relation of heat to pressure we cannot tell whether or no the surface of the earth be supported by a chaos of molten rock. If at any point the heated matter be kept solid by pressure it will start into fluidity if the pressure be lessened. Hence Mr. Scrope argues rightly that the outpouring of lava from volcanoes has no necessary bearing on the thickness of the earth's crust.

Nor can we obtain any light on this point from the consideration of the phenomena of precession and nutation, from which Mr. Hopkins ingeniously argued some thirty years ago, that the solid crust of the earth must be at least from 800 to 1,000 miles thick. Sir William Thomson has lately inferred from the same premises that "no continuous liquid vesicle at all approaching to the dimensions of a spheroid 6,000 miles in diameter can possibly exist in the earth's interior without rendering the phenomena of precession and nutation sensibly different from what they are;" and that the earth, as a whole, must be far more rigid than glass and probably even more rigid than steel, "while the interior must be on the whole more rigid, probably many times more rigid, than the upper crust." These conclusions, drawn by two men of such eminence, clash with two well-ascertained geological facts. If the earth be a solid mass, pockets and isolated seas of lava may remain here and there at different depths, to be the

foci of the volcanic and seismic energy, and thermal springs may be the result of the percolation of water down to the igneous reservoirs. This ingenious application of the theory of precession and nutation to the analysis of the thickness of the earth's crust might indeed be considered decisive had not M. Delaunay lately demonstrated before the French Academy by actual experiment that it had no bearing whatever on the problem. Both Mr. Hopkins and Sir William Thomson assumed in their calculation that the molten rock would be absolutely fluid and altogether devoid of viscosity. The eminent French mathematician proved that this latter property, inherent in all matter, would be sufficient to cause the earth, whether fluid or not in the interior, to behave precisely as if it were one homogeneous solid body. By imparting a slow revolving motion to a glass globe filled with water, he showed that both water and glass revolved precisely as if the whole had been frozen into one solid mass. The light therefore thrown by these researches on the condition of the interior of the earth is but darkness. The mathematicians of the present day for the most part accept the views of Mr. Hopkins and Sir William Thomson, while the geologists either maintain the existence of a fluid zone underneath the earth's crust, or pass by the problem altogether.

But if mathematics fail to tell us anything about the constitution of the interior of the earth, we do not appeal in vain to chemistry. We are indebted to M. Durocher* for a satisfactory classification not only of the crystalline rocks that underlie the sedimentary deposits, but also for absolute proof that the earth was an incandescent molten sphere before atmospheric and aqueous agencies had clothed it with the strata so familiar to our eyes. His researches, strange to say, are almost unknown in England, and have been noticed in but one of the many geological manuals that have been published during the last few years. They have, however, been endorsed by the high authority of Professor Haughton,† and have been approved

by the most eminent mineralogist in Britain in his presidential address to the Geological Society. M. Durocher divides all crystalline rocks into distinct classes, the one containing a mean proportion of 71·0 of silica, which he therefore terms siliceous, the other containing but 51·5, and being characterized by large percentages of lime, magnesia, manganese, and iron. To the first of these belong the granites, porphyries, and trachytes that underlie the stratified rocks, and occur also in all the older volcanic outbursts. They gradually become rarer and rarer from the palæozoic age to the present day. It is undoubtedly true that they are represented by the modern silicated trachytes and obsidians of the volcanoes of the Andes and of Iceland; but these are poorer in silica and richer in earthy bases than the more ancient silicated outbursts, and are, moreover, now extremely rare. This group of rocks has a mean specific gravity of 2·4. To the second, which, from the predominance of earthy bases, he terms basic, belong all the trap and greenstone rocks, basalts, dolerites, and augitic lavas, that are rarely met with among the older products of subterranean energy, but which become more and more abundant through the palæozoic and mesozoic epochs, until at the present day they are the staple produce of volcanoes. They possess a mean specific gravity of 2·72, being heavier than the siliceous group, in a ratio greater than that of water to oil. They have never been found in a position underneath the oldest sedimentary strata. Thus it is recognized that the silicated group of rocks which is the lighter is the older of the two, while the heavier is that which appeared later in time, and gradually became prominent, manifesting itself in greater and greater force down to the present day. From these premises it follows that heavier basic rocks lie underneath the lighter granitic, whether fluid or not we cannot tell, and that the latter, from their rare occurrence in the products of existing volcanoes, have for the most part cooled sufficiently to be solidified. It also follows from this arrangement, according to specific gravities, that at one remote epoch of the earth's history there were two continuous zones of molten matter,

* *Essai de Pétrologie comparée*, Annales des Mines, 5 série, tom. xi. (1857).

† *Manual of Geology*, 1866, 8vo, 2d ed. Lecture 1.

as clearly defined from each other as water from oil, and that the lighter was the first to form a thin pellicle on the surface of the incandescent globe. It is worthy also of note that nearly the whole of the earliest, or palæozoic strata, is formed of the detritus of the granitic layer, and is remarkable for its poverty in limestones, while the comparatively large development of the latter during the carboniferous, mesozoic, and cainozoic periods may be ascribed to the large percentages of lime furnished by the basic layer, which was then making itself felt more and more at the surface. The granitic rocks, moreover, must be very thin as compared with the earth's radius, for if at the present day they were sunk sufficiently deep to be heated up to their fusing points in the earth they would more often be found among volcanic ejecta. There are no means of estimating the thickness of the basic layer. These deductions from M. Durocher's admirable essay may be assumed to be true in proportion as they explain the complicated phenomena presented by the igneous rocks. It is not too much to say that his theory reduces the chaos which is to be found in all geological manuals, except that of Professor Haughton, to an admirable Cosmos.

But our knowledge of the interior of the earth does not stop here. There is reason for the belief that under the heavy basic matter there are those elemental substances which are either sparingly or never found in a state of combination in either of the two layers of igneous rock, such as arsenic, antimony, selenium, gold, copper, and the heavy metals, which occur in a great many of our mines uncombined with a particle of oxygen. "The metallic ores," writes Professor Haughton, "whatever be the condition in which they are found in our mines, originally came from below sublimed from the interior of the earth as sulphur salts." The fact that mineral veins occur both in siliceous and basic rocks, in such a manner as to show that they are of later origin than either, points also in the same direction. The process may still be studied at the crater of any active volcano. The high specific gravity also of the earth tends strongly to corroborate this inference, for it is more than twice as great as either of

the two kinds of igneous rocks; and when we take into consideration the comparatively low specific gravities of the latter, of water, and of the sedimentary rocks which are included in the estimate of 5.5 of the whole mass, it follows of necessity that the subjacent matter must be specifically heavier than 5.5. How much heavier we do not know, because of our ignorance of the thickness of the siliceous and basic layers; but it may fairly be assumed to be at least as heavy as the heavy bases and metals that range from 6.0 and upwards. Sir William Thomson throws out a speculation that it consists of a mass of magnetic iron, like that of some of the meteorites.

This evidence which we have adduced as to the ancient physical condition of the earth, is wholly inconsistent with the uniformitarian doctrine, because it points back to a time when the condition of the earth differed from that which it now presents. The arrangement according to density implies not only the igneous origin of the earth, but that in the time of its being in a molten state down to the present day it has been gradually cooling. The ignoring of this change of state constitutes, as Professor Huxley writes, the logical weakness of the uniformitarian doctrine. And just in proportion as the evidence is incompatible with the latter doctrine does it agree with Evolutionism, of which the chief corner-stone is the recognition of a change of state. The evidence points to change in a definite direction, it traces back the history of this earth to a time before the present order of things had been instituted, to a time before the molten sphere was cooled sufficiently to admit of the detrital action of water or of its accumulation in rivers, lakes, and seas.

Can we trace the earth's history further back than this? Are we justified in looking on our orb as a thing *sui generis*, united by no links with its fellow wanderers in space? If so, then we can never hope to gain any other idea of its early condition than that which has been sketched out. Fortunately the united labors of the chemist and the astronomer show that it is united with the planets and meteorites by a bond of the closest possible kind. Its present outward conditions now have been prov-

ed by Professor Phillips and others to be repeated in a most remarkable way in the planet Mars. The Martial surface is diversified by sea and land, and even is subject to the same climatal changes as our own. As the winter comes on the snows gradually creep over the ruddy surface towards the equator, until they cover an area round the poles extending as far as the forty-fifth degree of latitude with a shining mantle of white. When the spring comes round they retreat again, until at midsummer they form an arctic barrier extending ten degrees round the poles. Mars therefore has a polar and a temperate region, and probably also an equatorial, just like that which we enjoy. It presents precisely the same phenomena to our eyes that would be seen were an observer on its surface to direct his telescope at our earth. We are therefore justified in concluding that in all essential features Mars is a mere repetition of the earth. So far as heat and cold, summer and winter, land and water, and atmospheric conditions generally are concerned, there is every reason for believing that it is as fitted for the maintenance of life as our own planet. Unfortunately the rest of the planets are so concealed by thick cloud-envelopes that their true surfaces cannot be determined, but they have been proved by the researches of Father Secchi and M. Janssen to possess atmospheres containing aqueous vapor. It is, then, by no mere guess-work that the earth is brought into correlation with other planets, but by the testimony of our own eyes. The singular identity of outward condition in the only planet in which the external surface can be properly examined, implies an affinity not only with it, but with the others. To suppose that the resemblance is a mere accident is to ignore the reign of law.

The meteoric evidence also is of the highest value in the correlation of the earth with extra-terrestrial matter. The astronomical discoveries of modern days have increased the number of planets from seven to eighty-eight.

"The smallest of these" (Mr. Grove writes *) "is only twenty or thirty miles in diameter, indeed, cannot be accurately mea-

sured, and if we were to apply the same scrutiny to other parts of the heavens as has been applied to the zone between Mars and Jupiter, it is no far-fetched speculation to suppose that, in addition to asteroids and meteorites, many other bodies exist until the space occupied by our solar system becomes filled up with planetary bodies varying in size from that of Jupiter (1,240 times larger in volume than the earth) to that of a cannon-ball, or even a pistol-bullet."

And as from time to time some of these smaller bodies become drawn within the influence of the earth's attraction, and fall to the ground as meteorites, we have the means of judging by chemical analysis of the constitution of what may be called planetary matter. It has long been known that they have never yielded any new elemental substance, and that they revolve round the sun in a cold state, the thin glaze on their surfaces being derived from the enormous friction which they undergo when they penetrate the earth's atmosphere. We are indebted to M. Daubrée for the admirable manner in which they have been classified, and in which their evidence has been brought to bear on our earth's structure. They consist of nickeliferous iron, combined with various proportions of stony matter; sometimes the iron is perfectly pure, and capable of being turned to the ordinary purposes of manufacture, at others it is represented by an extremely small percentage in combination with sulphur or oxygen. The number of meteoric elements, established by the results of more than one hundred analyses, amounts altogether to twenty-seven, or to considerably more than one-third of those discovered in the earth, and these are for the most part abundant. Oxygen, hydrogen, nitrogen and chlorine, iron, magnesium, lithium, silicium, manganese, aluminum, potassium, sodium, calcium, sulphur and carbon, nickel, zinc, copper, arsenic, phosphorus, antimony, lead, and tin, are common terrestrial substances. Of the remaining four, cobalt, chromium, titanium, and selenium, the latter is the only one rarely met with on our earth, and it has been furnished only by the meteorite that fell at Bitbourg. If an equal weight of the earth's crust taken at haphazard were analyzed, it would hardly furnish a longer list of elements than this.

* Correlation and Continuity, 1867.

But the meteorites have a yet stronger bond of union with the earth than that of a mere elemental identity. They present precisely similar combinations of the elements to the number of over forty. The beautiful iridescent Labrador spar, for instance, is comparatively abundant. Serpentine also exists similar to that of Cornwall, and gypsum, while, if we believe in the doctrine of final causation, we may add sal-ammoniac for those that faint, and Epsom salts for those that require them. M. Daubrée has even succeeded in manufacturing meteoric matter from melted rock of the basic layer. His experiments show that they were consolidated in an atmosphere containing very little oxygen, since the oxides are but rarely met with; and thus he accounts for the large percentage of metallic iron, which in our earth is represented by the almost universally distributed oxide. This poverty of oxygen exists also in the heavy or basic layer of crystalline rocks.

The specific gravities also of meteorites illustrate forcibly those presented by the earth, for those which contain a large percentage of alumina have a density of 3.0, which corresponds very nearly with one of the heavier basic rocks (herzolite), while those which contain large percentages of the unoxidized metals range from 6.5 to 8. Thus the latter present a density nearly identical with that which from our previous argument has been assigned to the unoxidized terrestrial nucleus. Indeed, it is only reasonable to infer that the heavy meteorites are fair samples of the earth's nucleus, since the lighter ones represent exactly some varieties of the basic layer above. In a word, some meteorites repeat so remarkably the structure of some terrestrial rocks, that no hard and fast line can be drawn between them. Moreover, there is a greater elemental difference to be observed between some meteorites and others, than between their whole mass and the earth. And therefore we may fairly conclude that both were formed out of the same elementary matter, which in the former has become perfectly cold, while in the latter it is gradually cooling. This view of M. Daubrée's has been accepted in this country by no less authorities than Professor Warrington Smythe and Mr. Grove.

We will now pass on to the investigation of extra-terrestrial matter in a state of combustion, by the aid of spectrum analysis, by which "two German philosophers quietly working in their laboratories at Heidelberg" have obtained results almost challenging belief from their novelty and wonder. The light of sun, stars, nebulae, and comets is made to unfold the constitution of the bodies whence it emanates. "It does indeed appear marvellous," says Professor Roscoe, "that we are now able to state with certainty, as the logical sequence of exact observations, that bodies common enough on this earth are present in the atmosphere of the sun at a distance of ninety-one millions of miles, and still more extraordinary, that in the stars the existence of such metals as iron and sodium should be ascertained beyond a doubt." Truth in this case, as in many others, is stranger than the wildest fiction. For a clear and attractive account of spectrum analysis we would refer to Professor Roscoe's work, above quoted, which consists of six lectures delivered in 1868 before the Society of Apothecaries, together with appendices that almost exhaust the subject. The history of the discovery of this remarkable means of acquiring knowledge of matter dates as far back as the year 1675, when Sir Isaac Newton succeeded in decomposing light into the six colors of the spectrum by passing it through a round hole in a shutter and a triangular prism of glass. In the beginning of this century, Dr. Wollaston modified the experiment by making the light pass through a fine slit instead of a round hole, and was consequently enabled to detect the fine black lines in the solar spectrum, which have led to such wonderful discoveries during the last ten years. The careful examination of these lines was the work of a German optician, Fraunhofer, by whom no less than five hundred and seventy-six were mapped in 1814. Their presence in every kind of sunlight, whether reflected as in the moon and planets or not, and their fixity of position in the spectrum, was ascertained by that acute philosopher.

"Another important observation was made by Fraunhofer, namely, that the light from the fixed stars, which are self-luminous, also contains dark lines, but different lines from

those which characterize the sunlight, the light of the planets, and that of the moon; and hence, in 1814, Fraunhofer came to this remarkable conclusion: that whatever produced these dark lines—and he had no idea of the cause—was something which was acting beyond and outside our atmosphere, and not anything produced by the sunlight passing through the air. This conclusion of Fraunhofer has been borne out by subsequent investigation, and the observations upon which it was based may truly be said to have laid the foundation-stone of solar and stellar chemistry." (*Roscoe's Spectrum*.)

While these discoveries were being made in the spectra of the sun and stars, there was a corresponding advance in the knowledge of those of different terrestrial substances. Thomas Melville in 1752 first observed the yellow flame of sodium, while Sir John Herschel, after investigating the spectra of many colored flames, wrote in 1827, "that the colors thus contributed by different objects to flame afford in many cases a ready and neat way of detecting extremely minute quantities of them." Fox Talbot, a name eminent in the annals of photography, describes the spectrum of the red fire of the theatres as being possessed of "many light lines or maxima of light." He then goes on to say that there are marked differences between the red, orange, yellow, and green fire, and throws out the probability "that a glance at the prismatic spectrum of a flame might show it to contain certain substances which would otherwise require a laborious chemical analysis to detect." He followed up the inquiry, and in 1836, after pointing out the differences between the spectra of lithium and strontium, he wrote, "that optical analysis can distinguish the minutest portion of these two substances from each other with as much certainty, if not more, than any known method." Faraday's discovery that the electric spark "consists solely of the material particles of the poles and the medium through which it passes," was used by Sir Charles Wheatstone in 1834 for producing the spectra of incandescent metals; he was the first to attempt to represent them in a map. In 1845 Professor William Allen Miller experimented on the spectra of colored flames produced by the metals of the alkaline earths, and represented his results by diagrams which approxi-

mated closely to the great discovery which Professors Bunsen and Kirchhoff arrived at in 1861; he would have anticipated the latter had he not used a luminous flame. Twelve years after this, Professor Swan pointed out the characteristic of the soda flame, and discovered the great sensitiveness of the sodium reaction, which had led previous observers astray, because they could not believe in the almost universal distribution of that element.

"There is not a speck of dust," writes Professor Roscoe, "or a mote in the sunbeam, which does not contain chloride of sodium. Sodium is a prevailing element in the atmosphere; we are constantly breathing in portions of this elementary substance together with the air which we inhale. Two-thirds of the earth's surface is covered with salt water, and the fine spray which is continually being carried up into the air evaporates, leaving the minute specks of salt which we see dancing in the sunbeam. If I clap my hands, or if I shake my coat, or if I knock this dusty book, I think you will observe that this flame becomes yellow. This is not because it is the hand or coat of a chemist, but simply because the dust which everybody carries about with him is mixed with sodium compounds. If I place in the colorless flame this piece of platinum wire, which has been lying on the table for a few minutes, since I heated it red hot, you see there is sodium in it; there, we have for one moment the glimpse of a yellow flame. If I heat the wire in the flame the sodium salts will all volatilize, and the yellow flame will quite disappear; but if I now draw this wire once through my fingers, you observe the sodium flame will on heating again appear. If I heat it again and draw it through my mouth, it will be evident that the saliva contains a very considerable quantity of sodium salts. If I leave the wire exposed here, tied round this rod, so that the end does not touch anything, for ten minutes or a quarter-of-an-hour, I shall obtain the sodium reaction again, even if the wire be now perfectly free. This is because sodium salts pervade the atmosphere, and some particles of sodium dust flying about in the air of the room settle on the wire, and show their presence in the flame."

Thus it was that the value of the bright lines in the different spectra in chemical analysis gradually became realized, until in 1860 Professor Bunsen employed them in his memorable discovery of two new elements—caesium and rubidium.

"Shortly after he made his first experiments on the subject of spectrum analysis, Bunsen

happened to be examining the alkalies left from the evaporation of a large quantity of mineral water from Dürkheim in the Palatinate. Having separated out all other bodies he took some of these alkalies, and found, by examining by the spectroscope the flame which this particular salt or mixture of salts gave off, that some bright lines were visible which he had never observed before, and which he knew were not produced either by potash or soda. So much reliance did he place in this new method of spectrum analysis that he at once set to work to evaporate so large a quantity as forty-four tons of this water in which these new metals, which he termed *cæsium* and *rubidium*, were contained in extremely minute quantities.

"In short, he succeeded in detecting and separating the two new alkaline substances from all other bodies, and the complete examination of the properties of their compounds which he made with the very small quantity at his disposal remains a permanent monument of the skill of this great chemist. Both these metals occur in the water of the Dürkheim springs. I have here the numbers giving Bunsen's analysis, in thousand parts, of the mineral water of Dürkheim and Baden-Baden.

"The quantity of the new substance contained in the water from the Dürkheim springs is excessively small, amounting in one ton to about 3 grains of the chloride of *cæsium* and about 4 grains of the chloride of *rubidium*; whilst in the Baden-Baden spring we have only traces of the *cæsium* chloride, and a still smaller quantity than in the other spring of the *rubidium* chloride. From the forty-four tons of water which he evaporated down Bunsen obtained only about 200 grains of the mixed metals."

The delicacy of this kind of test was firmly established by this wonderful result. Two years previously its importance as a means of recognizing extra-terrestrial matter was shown by the great physicist, Kirschhoff. "So long ago as 1814 Fraunhofer discovered that the dark lines in the sunlight were coincident with the bright sodium lines. The fact of the coincidence of these lines is easily rendered visible if the solar spectrum is allowed to fall into the upper half of the field of our telescope, while the sodium spectrum occupies the lower half. The bright lines produced by the metal, as fine as the finest spider's web, are then seen to be exact prolongations, as it were, of the corresponding solar lines."

These facts, however, remained altogether barren of consequences, so far as regards the explanation of the phenom-

na, except to the bold minds of Angström, Stokes, and William Thomson; the last two of whom, combining the facts with an ill-understood experiment of Foucault's made in 1849, foresaw the conclusion to which they must lead, and expressed an opinion which subsequent investigations have fully borne out. Clear light was, however, thrown upon the subject by Kirschhoff in the autumn of 1859. Wishing to test the accuracy of this asserted coincidence of the bright sodium line and the dark solar lines with his very delicate instrument, Professor Kirschhoff made the following very remarkable experiment, which is memorable as giving the key to the solution of the problem concerning the presence of sodium and other metals in the sun:—

"In order," says Kirschhoff, for I will now give his own words, "to test in the most direct manner possible the frequently asserted fact of the coincidence of the sodium lines with the lines *D*, I obtained a tolerably bright solar spectrum, and brought a flame colored by sodium vapors in front of the slit. I then saw the dark lines *D* change into bright ones. The flame of a Bunsen's lamp threw the bright sodium lines upon the solar spectrum with unexpected brilliancy. In order to find out the extent to which the intensity of the solar spectrum could be increased without impairing the distinctness of the sodium lines, I allowed the full sunlight to shine through the sodium flame, and to my astonishment I saw that the dark lines *D* appeared with an extraordinary degree of clearness. I then exchanged the sunlight for the Drummond's or oxyhydrogen lime-light, which, like that of all incandescent solid or liquid bodies, gives a spectrum containing no dark lines. When this light was allowed to fall through a suitable flame colored by common salt, dark lines were seen in the spectrum in the position of the sodium lines. The same phenomenon was observed if, instead of the incandescent lime, a platinum wire was used, which being heated in a flame was brought to a temperature near its melting point by passing an electric current through it. The phenomenon in question is easily explained upon the supposition that the sodium flame absorbs rays of the same degree of refrangibility as those it emits, whilst it is perfectly transparent for all other rays."

Thus it was that the problem of the dark lines in the solar spectrum was solved. The delicacy with which Bunsen detected the infinitely small quantities of strange elements in the spring of Dürkheim was subsequently brought to bear on the analysis of the heavenly

bodies by Huggins, Norman, Lockyer, Dr. Miller, and others.* The discovery was the result of co-operation, and the fruit of the seed sown by Sir Isaac Newton. By its means we can acquire a knowledge of the condition of matter at the most stupendous distances from our earth. The sun will first of all engage our attention.

Whence spring the light and the heat of the great centre of our system, the life-sustainer, our fount of energy, our glorious sun? The wonderful results of spectrum analysis coupled with the progress of astronomical inquiries during the last few years yield no doubtful or hesitating answer. The sun is proved to be a great fiery globe surrounded by an atmosphere of intensely heated gases and vapors that are continually rising or falling like our clouds, according to their change of temperature. The willow leaf-shaped bodies which constitute the dazzling envelope or photosphere are probably foreshortened views of such clouds. During the last total eclipse the red flames, which flare out in some cases as much as from seventy to ninety thousand miles in height above the photosphere, were found to consist of burning hydrogen. The photosphere itself has yielded on analysis no less than thirteen of the elements—namely, hydrogen, sodium, magnesium, calcium, titanium, chromium, manganese, iron, nickel, cobalt, copper, zinc, and beryllium, to pass over others of which there is some doubt. Whether carbon, oxygen, or nitrogen can be added must remain doubtful, according to Dr. Angström and Professor Roscoe, because these constituents of our atmosphere yield a spectrum that is not visible “even between the carbon poles of a battery of fifty cells.” Every one of these elements has been found in the meteorites as well as in the earth. That is to say, that the matter from which our light and heat proceed in the sun is identical with that which falls to the earth cold and solid in the meteorite. There is also another important fact to be noted—that in the sun the elements seem to be arranged according to their vapor densities. The red flaming hydrogen, for instance, far

outreaches the atmosphere of the other gases, and apparently does not obey the law of gaseous diffusion which is invariable on the earth. This may possibly be brought about by the intensely heated state of the solar elements.

From this brief sketch of the sun all details foreign to the present argument are omitted, such as the different layers of luminous vapor, the solar spots, and the wonderful fiery storms that sweep over the photosphere more swiftly than the wildest terrestrial hurricane. The two facts which have a most important bearing on the ancient history of the earth are that the solar elements are identical with the terrestrial and the meteoric, and that the sun gives light and heat literally because it is on fire. Now we have adduced geological evidence that the earth was at one time molten; is it unfair to illustrate its history from its elemental identity with the sun? May we not look upon it as having passed through precisely the same stage of being as the sun, and as having been a centre of light and heat to its tributary satellites? The analogy rises almost to the dignity of an induction. On the one hand, geology points to a molten globe, which from its very heat must have been clothed with the gases of the metals and other elements not now found in our atmosphere; on the other, astronomy and chemistry show us a globe composed so far as we know it of terrestrial elements, incandescent, and a centre of light and heat. To put the two ideas together seems to us to be no forced union; they are the elements of a concept that transcends no known physical law, and that agrees with every chemical, astronomical, and geological fact that has a bearing on the question.

If this view be accepted we must look upon the sun as picturing to our eyes what may be called the sun-stage in the genesis of the earth, and we may consider that the present state of the earth is in some degree prophetic of the time when the solar light will be quenched, and its superficial heat so reduced as to admit of those chemical combinations now common on the earth—prophetic of a time when the molten surface will become solid, the fiery clouds be replaced by aqueous vapor, and rain, river, and sea gradually cover up the ig-

* Philos. Trans., 1861-9. Proceed. Roy. Soc., 1861-9.

neous crystalline surface with sedimentary rocks, and the earth-stage of development be initiated. This argument from sun to earth and earth to sun is founded on premises which are admitted on all sides to be true, while they are scattered through the pages of various writers; they can scarcely be termed false when they are placed side by side and compared. The conclusion is altogether inconsistent with the teaching of the uniformitarians that the only key to the past history of the earth is afforded by its present condition. They expect too much when they tell us to shut our eyes to the truths of astronomy and physics.

The stars also have been proved by spectrum analysis to be constituted very much as our sun, each consisting of "a white hot nucleus giving off a continuous spectrum, surrounded by an incandescent atmosphere in which exist the absorbent vapors of the particular metals." In the star Aldebaran nine elements have been detected by Mr. Huggins and Dr. Miller—hydrogen, sodium, magnesium, calcium, iron, antimony, mercury, bismuth, and tellurium. It is worthy of note that these three latter have not been detected in the sun. In most of the other stars hydrogen has been discovered, and to its conflagration was owing the sudden splendor of a small star in the Northern Crown, which blazed out in 1866, and as suddenly relapsed into its normal insignificance. The nebulae consist, some of gaseous matter containing hydrogen and nitrogen, while others give a continuous spectrum which implies that they are composed of solid matter.

In fine, the inevitable conclusion derived from the study of the heavenly bodies—of sun, earth, stars, meteorites, and nebulae—is that the immeasurable space is full of matter of the same kind, but aggregated in different fashions; sometimes being gaseous, at other times solid, sometimes in a state of the most intense heat, at other times cooled sufficiently to admit of the presence of life, as in the earth and Mars, or lastly cold, barren, and lifeless, as in the meteorites. Whether the gaseous condition of matter preceded in any particular case the solid we cannot tell. So far as our earth is concerned, the only idea that we can

grasp of its origin is that it was a fiery body like the sun, and that it has been gradually cooling from that time down to the present day. This realization of a steady change is the fundamental doctrine of Evolutionism.

Moreover, if we have sufficient hardihood with Sir William Thomson to look out into the earth's future, the rate of its present loss of heat by radiation implies that the time will arrive, when, like a meteorite, it will become cold to its very core, and when life will cease to be found upon it on account of the low temperature; provided that no collisions with other bodies happen to restore the heat which has been lost. And this exception leads to a mystery. Arrested motion, as Mr. Grove showed long ago, takes the form of light and heat. The motion of the train is visible in the sparks that fly from the break, and the impact of a cannon-ball on an iron target is seen in the dazzling flash, and felt in the heat of both ball and target. In like manner the heat and light of the sun are supposed by Sir William Thomson to have originated in the arrested motion of cosmical bodies which have fallen into it, and are considered by Dr. Meyer and other eminent physicists to be maintained by the constant gravitation into it of asteroids, meteorites, and planets.

"If the planet Mercury" (writes Professor Tyndall) "were to strike the sun, the quantity of heat generated would cover the solar emission for nearly seven years; while the shock of Jupiter would cover the loss of 32,240 years; our earth would furnish a supply for 95 years."

Whether this mode of accounting for the solar heat be accepted or not, it is absolutely certain that all planetary matter is inevitably gravitating towards the sun, which will be the common bourn of our system. "As surely," eloquently writes Sir William Thomson, "as the weights of a clock run down to their lowest position, from which they can never rise again, unless fresh energy is communicated to them from some source not yet exhausted, so surely must planet after planet creep in, age by age, towards the sun; not one can escape its fiery end. In like manner the satellites of the planets must inevitably fall into their respective planets.

As then it has been proved by geolo-

gy that our earth had a fiery beginning, so it is shown by an appeal to the law of gravitation that it will have a fiery end. Nor are we justified in viewing this as a never-ending cycle of change, or as a kind of phoenix life. For if we believe that the sun—the immediate goal of our planetary system—derives its light and heat from the impact of cosmical bodies, there must come a time when it will absorb all these into its own mass, unless we suppose with Kant that fresh matter be eternally drawn within the influence of its attraction, or, in other words, that the “Kosmos of our own system is continually being enlarged at the expense of Chaos,”—a supposition that is full of poetry, but not based on any known facts. When this comes to pass it must inevitably gradually lose its light and gradually pass into the earth-stage of development. In all this a progress is clearly shown. The earth passed from the incandescent into the habitable state, and will have its individuality annihilated by falling into the sun, and the same fate

will ultimately overtake the sun if it be true that it also is revolving round some enormously distant centre of attraction.

Such as these are the results of modern inquiry in widely diverse fields, in physics, astronomy, and geology. They prove that the earth is united by the closest bonds to the heavenly bodies, and that terrestrial change is one in a definite direction, in a straight line, so to speak, and not in a circle. We have thrown aside all speculative cosmogony and reduced the reasoning as far as possible to the law of a rigid induction. The facts adduced confirm most remarkably the truth of the doctrine of evolution first taught by the great philosopher Kant, and held by some of the ablest thinkers of the present day. It is impossible, in the face of rapidly increasing discoveries in spectrum analysis, any longer to shut our eyes to the condition of extra-terrestrial matter, in considering the past, and the probable future of the earth.

Cornhill Magazine.

THE BARBAROSSA LEGEND.

IN that special kind of German folklore, which is of a half mythical, half political character, Frederick the Redbeard plays the most prominent part. We come across him in local traditions, in popular poems, in national harangues, now and then even in parliamentary discourses, or in newspaper articles. Only quite recently he made his spectral apparition in a speech of Baron Weichs in the Austrian Reichsrath. Shortly before, it had been said in the Prussian House of Deputies, that the fall of German unity dated from the end of the Imperial Hohenstaufen race, to which Frederick Barbarossa belonged, and that German history, which had gone astray since then, ought to be resumed at that particular point.

The legend itself is, in its essence, well known all over the world. The great German king and emperor has never in reality died, but only withdrawn into the Kyffhäuser mountain: there he sits, in a crystal cave, at a marble table of snowy whiteness, surrounded

by his knights—their horses being ready saddled. The whole company are asleep—in a trance—enchanted. Every hundred years the red-bearded prince awakes, and then asks a dwarf, who acts as a page, whether the ravens still fly around the mountain? If the dwarf comes back with the unwelcome message that they still do, Barbarossa and his men again fall asleep for another hundred years. At last, however, the ravens will cease to encircle the hill: he will come out of his magic abode, when he will restore the greatness, power, and welfare of Germany after a bloody battle, in which hosts of her foes will fall.

This story is in keeping with a much-prevailing notion about the whole House of Hohenstaufen. The epoch in which successive rulers of that name held sway in Germany, and over the “Roman Empire” at large, has been designated as the Political Romance of the Middle Ages, as the Epic of our Imperial annals. And, indeed, there has been no lack of dramatic development, of tragic gran-

deur, of lustre and terror, of stirring contrasts between attempts at vast dominion and a precipitate fall, during the deeply-agitated time from Konrad III. to Konradin. Even as a glittering sword flashes forth from the darkness of night, so—in the words of Zimmermann—the Hohenstaufen race broke with startling brilliancy into our German history. Originally an insignificant family of “adalings,”* they, with giant steps, strode up to the summit of dazzling power. Their rule, from beginning to end, was an incessant glistening of the brandished glaive. And in the flash of the executioner’s axe, on the block at Naples, their trace suddenly vanishes—the whole constituting a true tragedy, of soul-moving effect, which only has not yet found its proper poet.

“Heroes” the Hohenstaufen have been called. But heroes of the rising spirit of their time they certainly were not, as the same Suabian historian observes. From the strong root of their power, from Germany, they tore themselves away, slaughtering German right and freedom at the altar of their Italian ambition, and attacking the free cities of Lombardy with a fierce cruelty that sickens the eye and the heart. Nor can it be said even in mitigation, that through their warlike despotism they, at least, upheld the unity of their own nation against the foes which internally undermined it. On the contrary, their unbridled ambition, which continually drove them to seek fields of glory abroad, had the effect of weakening the central authority at home in its dealings with those local governors, whose never-ending, and, at last, successful, rebellion finally led to the establishment of a medley of sovereign dynasties, in the place of a United Empire served by officials removable at will. The Hohenstaufen policy, in fact, was the cause of the later disruption of our national union. The Kaiser had to buy the military aid, which he so frequently required for his expeditions abroad, by concessions of sovereign privileges to his subordinate officials—the dukes and princes. The very foundation of Austria as a distinct country, whose ruler should not be amenable any longer to the strict control of the German king and Kaiser, is traceable to such

a mistaken act of Frederick Barbarossa. Most unjustly, therefore, is he considered the very representative of German unity.

Friends of art and poetry the Hohenstaufen were. They also had, each in his own way, great personal gifts. Bold warriors; some of them *minnesänger*, or troubadours; or inclined towards science and the intellectual enlightenment that flows from it, they yet, with scarcely an exception, were of a despotic temperament. One of the harshest was the famous Redbeard. He had the full *Junker* and tyrant vein. Without being remarkably pious, he yet delivered over that good reformer, Arnold of Brescia, to the Pope, who put him to the stake. The smell of the burnt human flesh was yet in the air when Barbarossa entered Rome, to be crowned emperor by the Pope, Hadrian IV. The towns, the peasantry, had no favor from that German imperator. His notions about his regal power were more than Cæsarean—they have a tinge of the Tartar. When the banner of freedom of the city of Milan was lowered before him, and the unhappy citizens were prostrated at his feet, with ropes round their necks, tears came into the eyes of all those present, at such humiliation of brave men. The Kaiser alone showed a face like a flint: “*sed solus imperator faciem suam firmavit, ut petram.*” He was an enemy of the people, this glorious, but at last doubly-defeated, Cæsar. It is true, towards the end of his prolonged and checkered rule, he made his peace with the Lombard League of Free Cities, and even expressed deep regret for what he had done. That was shortly before his decease. In Asia Minor, on a crusade, he met with his death (1190) in a manner not quite cleared up. Then the ever-busy Saga wove its veil over his memory, transfiguring him to such an extent as to make historical truth well-nigh vanish entirely from this new conception of his character.

Now, it may well be asked: how is it that this arbitrary, in many of his acts rather barbarous, often triumphant, but at last totally and deservedly humiliated warrior-king, who, during a long lifetime, had proved so bitter a foe to the popular classes in town and country, has, after all, been converted, by legend, into a very favorite, darling hero, and future national saviour, of the German nation?

For nearly forty years had the Red-

* Noblemen.

beard stood at the head of our empire. His figure, therefore, necessarily made a deep impress on his epoch. Even in a bodily sense he was somewhat apt to captivate the people's imagination, if his court writers, who depict him to the very detail of his ears and teeth, have told the truth. They describe him as above the common height, of graceful build and noble deportment. They speak of the lustre of his reddish hair—(which, by the by, he wore short, not in waving locks, such as our painters erroneously attribute to him);—of the terrible glare of his blue eyes, comparable to the lightning of Heaven; of the dazzling whiteness of his skin, reminding one of the Alpine snow in the glow of the glaciers! It will be seen from this that the scribes laid it on thick; and Frederick was not the man to stop them in their ardor.

Yet, however strong the mark may have been which Barbarossa's image made on his contemporaries, and on the following generations, the question still remains,—How could such an enemy of the people, with all his heroics, be turned into a representative of popular aspirations? Why was he chosen to typify the Sleeping Deliverer?

Some may answer that the memory of Frederick I. had become purified, cleansed, as it were, by his later confession of repentance. Others may say that the world of aristocratic chivalry, combined with the influence of the priesthood to whom he had at last become reconciled, had done their best to give the convenient myth a popular currency. All that is, however, not a sufficient explanation. To arrive at a full understanding we must dig deeper. We must try to find the strong roots from which such fables sprout up and burst forth ever and anon, and show the process of transfiguration which they invariably go through, on having attained a certain stage.

First, then, the following facts and principles ought to be kept in mind:—The Redbeard myth is by no means so exact, rounded off, and clearly circumscribed, as one would suppose, for instance, from Rückert's poem. Its contents are *not* identified with a single individual hero. That Saga is rather a poetical transmutation of ancient Germanic religious creeds and attempts at an explanation of the phenomena of na-

ture; and the strangest bits of oriental mythic lore have gradually become interwoven with it.

"We have then"—some will say—"a *quid pro quo* before us?"

To this I can only reply in the affirmative.

Yes, paradoxical as it may seem at the first glance,—the emperor who dreams in the mountain-cave, who has never died, and who is surrounded by crystal splendor, is nothing else than the human transformation of the All-Father Wodan. The tale of the "Wild Hunter," and of the "*Wuthende Heer*," is equally to be traced back to Wodan; and, in a great measure, the vast and winding currents of that strange myth commingle with the not less fantastic course of the Redbeard legend. Not Barbarossa alone, but other Germanic heroes and leaders also, were "enmoun-tained," if I may say so, by popular fiction. Nay, extraordinary, or even ridiculous, as it may sound, there is yet no doubt for the inquirer that Barbarossa in the Kyffhäuser, that the Rodensteiner who dwells in a hill of the Odenwald, that the Schnellert's Spirit, ay, that the Rat-catcher of Hameln, known to the general reader of German literature from Goethe's poem, and that the very bogies of the Christmas time—Knecht Ruprecht, Niklas, and Pelzmärtel—are, after all, the same figure, only in different costumes. If that can be proved, the Barbarossa myth certainly loses very much, though not everything, of its *political* significance. Through centuries, through thousands of years, the materials of Sagas remain essentially the same. The ever-weaving hand of fiction only seeks for new garnish, with which to edge, lace, and border out the familiar garment. Fresh colors are added, fresh adornment wrought into it; but its basis remains unchanged. Thus it preserves the charm of time-honored remembrances, and still appears attractive to each succeeding generation.

When we look at the old Germanic tale-treasure and endeavor to reduce its contents to the simplest elements—even as we do with a language, when trying to get at its roots—one experiences a feeling as if seeing, in remote antiquity, lofty trees growing up from a few germs, trees which, like unto those of

the virgin forest, lower their branches earthwards—striking root once more, so to say, from above: then rise again with firm stem, spreading their boughs—until at last an impenetrable thicket is created, an entangled, labyrinthine wood, in which tree interlaces and grows out from tree, and the very soil seems gnarled, knotted, and fibrous, whilst the thick roof of leaves shuts out every ray of light.

Thus it is with sagas and tales. From Asia a forest of popular legends has spread over Europe, which all curiously hold and interlace each other. Tales which at present have only a place in the nursery, or are yet narrated in a lonely village—by the side of the spinning-wheel, before the flickering fire, when nature seems entranced in a weird winter sleep,—were once a part of glorious hero-sagas, of ambitious religious systems, of heathen creation-stories, of ancient attempts at a philosophical or physical explanation of this wondrous world. That which a superficial half-culture formerly derided as mere boorish nonsense can in this way be followed into Indian or Egyptian antiquity, and sometimes suddenly comes back upon us in the legends of the Red-skins on the other side of the ocean. But I have to furnish the proof of the Barbarossa legend being only a transformation of older tales and mythologies.

So far from his being alone spirited away into a mountain hollow, the same was fabled, before him, of Charlemagne, who is said to sit enchanted in the Desenberg, near Warburg; or in a hill near the Weser; in the Spessart; in the Donnersberg; in the Untersberg, and elsewhere. He, too, was to break forth one day from his subterranean dwelling-place as a great leader of battle. The same tale was told of our Henry I. of Germany, who was said to be enmoun-tained near Goslar, and of our Otto the Great, to whom the Kyffhäuser itself was ascribed as his spectral abode. Later, the legend substituted Friedrich the Hohenstaufen for those earlier German kings and emperors. Now the Redbeard was conjured away into the Kyffhäuser; another myth placed him in the Untersberg, one of the legendary haunts of the Franconian Karl the Great.

The doubts about the manner in

which Frederick had found his death in the river Seleph—whether it was during a bath, or in riding through it; whether he was drowned, or died a few days after an injudicious plunge into the cooling water,—together with the fact of his having disappeared in the far East, where fables seem to grow wild—contributed certainly much to his name being chosen as a graft on the old mythic stem. The mystery that hung round his decease made him a fit subject for fiction.

Some particular traits of the Barbarossa legend are clearly derived from the East. There is an Asiatic tradition of the fourteenth century, which said that the dominion of the world would once fall to a Prince who could succeed in hanging up his buckler on a certain withered tree. The Tartars related that this tree stood in Tauris—in the Crimea. Other Oriental nations mentioned the Mamre Wood as the place. I may observe, in passing, that this myth has some vague affinity to the ancient Greek tale of the Golden Fleece, which hangs on a tree in a sacred wood, and the conquest of which was to bring glory, riches, and power of dominion.

Now, of Frederick I. of Germany it was fabled that if his beard had reached, in growing, the third corner of the table, an immense change would occur in the world. On the Walser field a great battle would be fought; there a withered tree would stand, on which the Redbeard was to hang up his buckler: thus the victory would be gained, and Germany's dominion would be founded.

Hence it is proved already that Frederick is neither the only mythic figure of this kind, nor the tale itself of exclusively German origin.

Another Barbarossa legend has it that the battle on the Walser field is to herald in the world's end—so to say, a *Götter-Dämmerung*. The bad are slain by the virtuous; Truth and Right obtain the mastery. The political meaning of the myth here disappears entirely. The great carnage which is to take place has a religious significance. The form of this particular saga has a Christian aspect; but its ancient heathen contents may be easily peeled out from it, even as in the *Nibelungen-Lied* the old Ger-

manic heathens may, without difficulty, be recognized under similar garb.

Popular fiction has not stood still after Frederick in its transmuting procedures. About four centuries after him, Charles V., certainly not an emperor of very patriotic German character—he could not even properly converse in German; the Spaniards said he was defective also in Spanish!—was similarly drawn into the poetic cauldron. Down to quite recent times the peasantry in Upper Hesse related of him that he had fought a great battle and been victorious; in the evening a rock opened, taking in Karl and his army, and then closing once more its walls. There the Emperor sleeps now in the mountain. Every seven years he issues forth with his men in ghost-like array: a storm is heard whizzing through the air, together with the neighing of horses and the clatter of hoofs; after the spirit procession is over, the Wild Chase returns to the mountain.

Now this Charles V., besides being very little of a true German, had given the peasantry small cause for liking him particularly. Under his government occurred that terrible overthrow of the so-called "Peasants' War," which ended with the application of the most frightful punishments and tortures to the defeated insurgents. They were strung up like so many braces of birds, or quartered, or put to death with red-hot irons, the flesh being taken from them piecemeal; or their bodies were ripped up, and their bowels taken out, whilst the whip was applied to the lacerated and howling forms of suffering humanity. And yet the legend of the peasantry transfigured even the Emperor under whom all this happened into a demi-god, throning in a magic cavern!

The fact is, this legend about Charles V., which seems to have arisen as a superstructure on the Barbarossa myth, has a common root with the latter, namely, the myth about the Wild Hunter and the *Wuthende Heer*, which, in its turn, springs from the Wodanic circle of sagas.

Wodan, Wuotan, or Odin, was mainly considered as Lord of the Air, who chases through the sky in the roaring storm. Perhaps his name signified "the Quick-going;" hence the storming, the

raging, which would the better account for the transmutation of Wodan's or Wuotan's hosts into a *Wuthende Heer*. But into this etymological question I will not enter, knowing too well the irreconcilable nature of the different derivations, and the impossibility of arriving at any satisfactory solution. On surer ground we tread—if the quaking soil of mythology can at all be regarded as sure—when remembering how similar the ghost-like procession of various popular heroes is to that of the heathen All-Father.

The myth represents him as careering along on a milk-white horse, from whose nostrils fire issues. A broad hat covers the gray head of the ancient god; a wide flowing mantle flutters about his shoulders. The horse is considered a symbol of the drifting cloud. The wide mantle equally typifies the cloud-speckled sky; the hat, even, is thought to be a representation of the cloudy cover of the earth. As a symbol of the starry sky, Wuotan, or Muot, as he is sometimes called, with a not unfrequent change of the initial consonant, is also sometimes regarded. Witness the riddle of the Swiss peasantry in the Aargau:—

Der Muot,
Mit dem Breithut,
Hat mehr Gäste
Als der Wald Tannenäste.

To this Lord of the Sky, of the Clouds, and the Winds, the myth attributed the additional character of a Chieftain and Marshal of the Dead, who leads the souls of the departed through the air to the splendid palace, the Walhalla. The Romans compared our Wodan to their own Mercury. Evidently the point of comparison was this, that both held the office of guides to the other world; hence Mercury was called "Psychopompos."

However, it may be asked, what has all this to do with Barbarossa? The close connection will presently be seen.

That god of the winds who careers through the air, leading on horseback the army of the dead, was represented, when not engaged in such stormy procession, as sleeping, dreaming; sleeping in a glistening cloud-castle, or mountain of clouds, in a *Wolkenburg*, or *Wolkenberg* ("Burg" and "Berg" are traceable to the same root). It means the storm

that sleeps in the cloud-castle, or, in more sensual form, the Storm-God, the ancient, hoary-headed. And as this storm-god is a leader of the dead whose souls depart through the air, we have here at once the whole necessary scaffolding for the construction of a legend about a great army leader, or warrior-king, or, if need be, also a wild hunter, who sleeps and dreams in a mountain, where he waits his time, or from which he occasionally breaks forth. The *Wüthende Heer* of the *wilde Jäger* is Wotan's army. For a while the two myths go side by side, each with a touch of the other. Then they separate entirely, that is to say, when, in the memory of the masses, among whom those myths hold sway, all recollection of the root and origin of the words in question has disappeared.

How often, through the misconception of words, has a new mythology, a new superstition, arisen! First, a word was misunderstood; then it was filled out with the corresponding contents which it seemed to indicate. Thus, in some parts of Germany, the *wilde Jäger* became a *Weltjäger*, a world-hunter; and, curiously enough, this latter expression, which has simply been begot by an error of the ear, comes nearer once more to the original idea of the stormy wind, or the storm-god, who pervades, as Wotan, the world. In this manner the false idea comes out of the originally correct word, and the more correct idea grows up from a misconceived designation. Clearly, mankind has some difficulty in getting at truth with such inherent failings of language.

The two great branchings-off of the Wodanic idea are, consequently, the Wild Hunter who dwells in the mountain, and who leads the hosts of the departed; and the different Warrior Kings who sleep in a mountain with their dead yet never-dying hosts.

Each of these separate outgrowths of the Wodanic Saga circle have been worked in the most variegated manner by local fiction. In Brunswick the grave is shown of a Junker Hackelberg, who is there regarded as the wild hunter. In the Uckermark there is a tradition of a wretched huntsman, Bärens, who once went a-chasing on a Sunday, and who is now condemned, with his hounds, to be

on the chase for all eternity—at least, whenever the wind howls at night. Would it be believed that this Junker Hackelberg and this wretched Bärens are, even in name, old Wotan? “Hakol-bërand” was once one of the names of Wotan. It means the mantle-wearer,* the wearer of the cloud-mantle. Wotan *Hakol-bërand* became *Hackelberg*; and lastly, throwing off his mantle altogether, he became simple *Bärens*. A whole crowd of figures of the spirit and fairy land, male and female, have in a similar manner been evolved out of some misunderstanding of the numerous surnames and attributes of our ancient German gods and goddesses. To treat of this would, however, lead too far; and I will only remark in passing that Goethe's *wohlbekannter Sänger, der vielgereiste Rattenfänger*, who “occasionally also catches girls,” has arisen from a strange combination of two qualities attributed to Wotan. The rats or mice which he catches are originally nothing but the symbols of the souls whom the All-Father carries to their final destination; the souls, in ancient popular superstition, being often represented as mice. Thus, a little red mouse issues from the mouth of the beauty with whom Faust dances on the Blocksberg. The “girl-catching” of the *Rattenfänger* is reducible to the tradition of Wotan hunting and catching the moss-women, wood-nymphs, and *Lohjungfern*—that is to say, the storm-god, or the storm, seizes the boughs and the leaves of the forest-tree, shaking and catching them in his embrace. The Hackelberg and the Bärens at last lose, in some parts of Germany, even the faint trace of some resemblance in name to the old heathen god. In Schleswig-Holstein the wild hunter finally came to be a certain Frederick Blohm, the gamekeeper of a bishop; or a certain Herr von Schlippenbach; or, in other provinces, a General Sparr, and so forth. In this manner Wotan had at last donned a livery or a uniform! The manifold popular tales about aristocratic robber-knights also aided in the process of transfiguration. The oddest and most insignificant per-

* From “hakol,” Latin *cucullus*, cowl,—*Gugel*, the German *hehlen*, *Hülle*,—and “beran,” to bear.

sonages were engrafted on the mythic trunk.

But it is time to pass over to the other branch-line of the Wodanic Saga circle, where we are to meet our Barbarossa. The Junker Hackelberg—and this will explain why I have gone into some details on matters apparently unconnected with the Redbeard legend—may serve here as a transition. He forms, so to speak, with the hero of the Kyffhäuser, an ill-matched Siamese twin.

When Junker Hackelberg and the other wild hunters are roving about at night, a raven flies before them. The nocturnal phantom passage of Wodan was equally preceded by the mortuary birds, the ravens. They were the black-feathered harbingers of the souls destined to Walhalla. Besides the ravens and the horses of the Wodanic procession, we also find boars connected with the stormy march of his Hosts of Departed. And here it may be observed that, in the mythic lore of our forefathers, the wind, which scrapes and roots up the soil and raises clouds of dust, was represented as a boar, from the well-known scraping propensities of that tusked quadruped. Even nowadays the peasantry in some Bavarian districts speak of the "Wind-Sow" which tramples and roars through the country. The expression is certainly less poetical than that which prevails in some other parts,—namely, *die Windin*, the Lady of the Air, a playful goddess of the storm, whose delight it is to snatch the hats from men's heads, so that they should run after her.

I have spoken of Wodan's ravens, horses, and boars. They are all to be found in the Barbarossa legend. Thus, that warrior-king is again the wraith of the Germanic god that has been spirited away into an underground world. From the dazzling palace, up there in the milk-white cloud-castle, he has, at an inverted *Fata Morgana*, been charmed into a glittering crystal palace of a subterranean cave, where he sits, not on a white horse, but on a white ivory chair, at a white marble table; his whole suite of heroes and representative animals having remained with him. Only, the ravens which formerly preceded Wodan, or sat on his shoulders, now flap their wings round the mountain. But whoever, by chance,

strays into the Kyffhäuser, as it happened now and then to some peasant, will see there the horses tied to their stabling places, and boars also will be met with, running in and out. Now and then, a strange clangor and clatter, as of chains, is heard. It is the storm that is awakening—it is Barbarossa that wants to ride forth into the surrounding land.

We have to take into account here, also, another component part in the formation of myths. Christianity, it is known, had some difficulty in getting a hold on some of the German tribes. They killed the messengers of the new faith who had struck down their sacred trees. The Saxons battled for long years against Charlemagne, as much from love of independence and self-government as from attachment to their own creed, which pleased their warlike and defiant character better than did the meek doctrine of the Saviour who wore the crown of thorns. Now, many among the people, in spite of outward conversion, remained secret adherents of the old *Asen-Saga*. The rites of the Blocksberg, the many trials of persons reputed to be witches dealing with demons, prove the fact in their own way. It has been said that the Reformation could strike root more quickly in the North, because Catholic Christianity had scarcely yet been firmly implanted there. This is certainly true, to some extent; however, I believe that even in the South the heathen ideas and customs, though disfigured in their meaning, and no longer understood, have scarcely died out earlier than they did in the North. It is a chapter on which much indeed might be said. Even now, the reapers in some Bavarian districts are accustomed to bind together the stalks that have remained untouched by the sickles, forming a figure of it, with a head and arms rudely fashioned out of a sheaf, which they call the "Oanswald," "Aswald," or "Oswald," and before which they kneel down, offering thanks and prayers, and exclaiming: "This is for the Aswald!" Here we have an ancient form of worship in honor of the "Asenwalter," or ruler of the gods, the all-creative force—which afterwards was changed into a "St. Oswald."

The priests, themselves, favored such transformations. In order to wean the

people from its heathen creed, they did not deny the existence of the pagan divinities, but only degraded them, turning them into devils, and making the converts abjure them as if those "devils" had real existence. We have yet such an ancient formula of abjuration, dating from the eighth century, and referring to Thunar, Wodan, Saxnote, "and all the other fiends that are their associates." Sometimes, the dethroned gods and goddesses were changed into dead-alive cave-dwellers of the heroic mould, or into ghastly forms of the lower regions, into nocturnal lemures and gnomes. The people, still faithful to the old superstition, and bearing in their hearts the ancient god, though not daring to exhibit him in the light of day, hid him by preference in a mountain—embalmed him, if I may say so—put him to sleep—made him dream, and only called him out, in their imagination, at night, or at great distances of time, when he came, as it were, on an occasional visit.

After a while, all recollection of the original significance of the myth vanished, and as this occurred in an age when there were few books, and the art of printing was still unknown, Fancy, which is always apt to run wild among the half-cultivated, then felt perfectly free, and easily broke out into the most disordered inventions. In the long evenings, at the fir-wood fire, when light and shadow play hide-and-seek, the most incredible substitutions and transformations were begotten by an unbridled imagination. Thus Charlemagne—that enemy of the Wodan creed—himself became the substitute of Wodan, and *he* was concealed in the underground palace! Again, later, his place was taken by Frederick of Hohenstaufen; the enemy of the people becoming its apparent favorite. In this way, the most opposite notions and tendencies, heathen and Christian, European and Asiatic, religious and political, are combined in inextricable confusion. The forces of nature, gods, heroes, devils, hags, gnomes, and animals, are all thrown together in a confused heap, forming a precious broth of witchcraft.

I have mentioned Karl the Great as the predecessor of Barbarossa in that particular form of myth which removes

a hero from the eyesight of men, giving him a spectral, and yet, at the same time, terrestrial abode. I might allude to a similar myth referring to Dietrich von Bern, that is, Theodorich, the King of the Goths, of Verona, in which all the constituent elements of the legend, with the usual sorcerer's apparatus, are already contained, viz., the mountain, the horses, the dogs, the ravens, the sleep and the dream of the spell-bound hero, as well as the rustling and clatter in the air when he starts for his roving hobgoblin expedition. It is always the same tale, only new raiments are ceaselessly woven for it at the ever-whirring loom of time.

Thus mythology, the heroic legend, and all folk-lore and fairy-tale matter is engaged in a continuous up-and-down process of development and degeneracy. First, we see the feeble attempts of a people in remote antiquity, trying to account for the world and its working forces. Then, partly by the artistic instinct, partly by a misconception of words, partly by the rise of a priestly caste, which endeavors to use the crude ideas of the mass as a means of power and influence for itself, a series of idols and gods are shaped, which either are supposed to walk on the green earth, to haunt its mountains, fields, and rivers, or which are made to throne in the welkin. With these celestial figures the heroes of this world, raised to the position of demi-gods, are gradually confused, if the gods have not been altogether fashioned out of worshipped human leaders. Later, when the original belief suffers in its influence by the invasion of a new mythic creed, an evolution in an inverse rate takes place. Then fiction no longer spreads upwards, but it descends from the serene and lofty heights to the earth, and even into the regions beneath it. The gods once more become simple heroes, men, nay, even cobolds and spectres. The once powerful figure of a Wodan shrinks into an uncommon, or even a common, emperor or king. It suffers diminution to the extent of being changed into a wild hunter, or a gamekeeper on a lordly demesne; or it turns up, after much variegated masquerading, as a Pelznickel among the peasant children, whom it terrifies or rewards before Christmas.

time, according to their behavior. Thus, Freia-Holda, the noble goddess of love, the German Venus, becomes simple Frau Holle, a beautiful witch, or even a spuke, and a hag, charming in the face, but similar to a hollow tree from behind. And songs, which once may have formed part of religious rites, are at last only yet found in a fragmentary form, apparently of sense devoid, or only with an occasional glimpse of meaning—such as the “Song of the Stork,” or the “Song of the Kindleins-Brunnen,” which children repeat with lisping voices, having heard them when on the mother’s or the nurse’s knee.

Thus, that which once was revered as heavenly, returns to the earth, is transplanted into field and dale, into caves, nay, even into the kitchen; and a splendid fable of gods ends as an Ashpittel,

a Cinderella, who drearily sits at the hearth, shelling peas, despised and ill-used by her sisters, the new religions, until one day the inquirer comes, who, from the delicate slipper, recognizes the sublime beauty, and who raises the soiled tale once more from dust and dirt to its high poetical rank, to its philosophical significance.

In this way we have to comprehend also the Redbeard legend. In doing so, we shall be able to enjoy its poetical contents, without allowing ourselves to be misled in the appreciation of an historical character, and without becoming untrue to those principles of humanity and freedom against which the famous Hohenstaufen Prince was one of the worst offenders.

KARL BLIND.

St. Paul’s.

COLORS OF THE DOUBLE STARS.

OLD Zahn, in the strange work called the “Syntagma,” says of the stars that they shine “more like torches burning with eternal flame before the altar of the Most High, than the lamps of the ethereal vault, or the funeral lights of the setting sun.” And he proceeds to discuss the various colors seen among the stars, arguing that the stars show by their tint to which planetary party they belong. There are the partisans of Saturn, with a dull and leaden aspect; the Jovial stars brilliantly white; and the Martial party with fiery, ruddy rays. Those stars which have an orange-colored light are the adherents, he thought, of our sun; while those which are pale and faint belong to the Moon. Lastly, the stars which obey the planet of Love, shine with a box-colored light.

One cannot wonder that even before its true significance was understood, a phenomenon so beautiful as the colored splendors of the stars should have attracted attention. In our latitudes, indeed, the colors of the stars are not very striking, though even here they may be very easily recognized when the air is clear and dry. But in southern climes, and especially in that land where astronomy had its birth, the colors of

the stars form a very beautiful feature of the nocturnal heavens. “The whole sky,” remarks a modern traveller, “seems set with thousands of varied gems.” Nay, even the shooting-star, as it flashes across the heavens, exhibits colors which are never seen in our latitudes. Sir Alexander Burnes remarks on the magnificent spectacle presented by the colored shooting-stars seen from the elevated table-land of Bokhara, and Humboldt was deeply impressed by the same beautiful phenomenon.

The colors, then, which we notice in the stars are to be looked upon as giving but the faintest notion of the real splendor of the hues with which those distant suns are shining. If the mere change from our latitudes to tropical climes can add so much to the brilliancy of the stellar colors, how gorgeous would be the scene if we could behold the galaxy of suns from above the limits of our own obscuring atmosphere! We should see Arcturus and Aldebaran, Pollux, Antares, and Betelgeux, blazing like sun-lit rubies among their fainter neighbors; the glorious yellow of Capella and Procyon would surpass the most splendid golden or topaz colors known to our artists; while the brilliant white

hues of Vega and Altair and the blazing Sirius would be no less beautiful and striking.

But even such a scene as this, wonderful as it would appear, would be as nothing when compared with the splendors which would come into view if the powers of the observer's vision could be gradually increased until the stars, which are now only detected by the piercing eye of the telescope, were seen in all the richness and variety of their colors. It is among the stars which are invisible to the unaided eye that the real splendors of celestial coloring are to be found. No words can adequately describe the beauty of the scene which our observer would behold; but if he sought to convey some imperfect notion of the glories revealed to him, he could find perhaps no apter account than the well-known lines of Thomson:—

"First the flaming red
Sprang vivid forth; the tawny orange next,
And next delicious yellow; by whose side
Fell the kind beams of all-refreshing green,
Then the pure blue that swells autumnal skies,
Ethereal play'd; and then, of sadder hue
Emerged the deeper indigo (as when
The heavy-skirted evening droops with frost),
While the last gleamings of refracted light
Died in the fainting violet away."

In this order would the colors of the stars come into view. We see in the nocturnal skies no traces of those green and violet and blue and purple suns which are really pouring forth their richly-tinted rays on other worlds and other scenes. Only the ruddier tints of the prismatic color-scale are visible to the unaided eye, and even these not with that fulness or depth of tone which may be recognized in the telescopic stars.

But even among the stars which the telescope reveals to us, the full range of color is only to be seen among the members of a peculiar order. There is a little difference among astronomers on this point; but most of them agree that no isolated stars of a blue, or green, or purple color can be seen even with powerful telescopes. So commonly has this been asserted, that the late Admiral Smyth, who thought he could recognize very decided blue tints among the minuter stars, expressed a doubt whether this might not be due to some idiosyncrasy of his eyesight. And certainly there is no instance, among the thousands

and thousands of stars whose places have been recorded, of one isolated star of a well-marked blue color.

But when we turn to those interesting objects, the double stars, the scene is wholly changed. Every variety of color is seen among these singular systems. We not only find all the tints of the rainbow, but a number of other colors, such as fawn, buff, ash-color, silvery-white, coppery, and gray. The range of color seems, in fact, wholly unlimited; and astronomers need the aid of a practical artist before they can even tabulate the long list of colors which the double stars exhibit to them.

There are few subjects which seem better calculated to attract and interest even the least thoughtful than the presence of these singularly beautiful colors among the orbs of heaven. Regarding the fixed stars as suns, the centres of schemes of dependent worlds resembling in many respects the worlds which circle around our sun, we cannot but look with wonder upon the strange scene which must be presented amid those distant systems. It would be interesting enough to consider merely the case of a number of worlds circling around a red, or orange, or yellow sun. But when we imagine the condition of those worlds which travel round a pair of differently-colored suns, we are lost amid the perplexing considerations which suggest themselves. "Imagination fails to conceive," says Sir John Herschel, "the charming contrasts and grateful vicissitudes of a red and green day, alternating with white light or with darkness, in the planetary systems belonging to these suns."

Perhaps, however, we do not see in this description the true result of the presence of two suns as the companion rulers of a planetary scheme. Until we know something of the distance at which the members of such a system circle around their double primary, we can hardly assert with confidence that those planets have days of different colors. It may well be that they are so far from both the orbs which sway their motions, that their two suns are always seen close together, as they appear to us, who are so much farther off.

But even when we take this view, we are struck with the thought of the strange scene which the sky of one of those dis-

tant planets must present. Conceive two colored suns above our horizon. Now one, now the other, is the leading light of the firmament. Their distance from each other is constantly varying as the planet circles round them. Often one must pass before the other, and then the color of the day changes, passing through many gradations, as the strange transit of sun over sun is in progress. Then every object on such a planet must cast two different shadows. If the suns are red and green, for instance, the shadows are green and red. When we remember how large a part shadows play in the appearance of a landscape, we see at once how strange a scene the hills and dales and valleys and woods in those distant worlds must present to those who inhabit them. Living creatures must exhibit a yet stranger aspect.

But our object is not to deal with fanciful speculations such as these. There is a real physical meaning in the colors of the double stars which is well worth searching out.

Let us first notice certain facts about the colors of the double stars which are at once interesting and instructive.

In the first place, it has long been noticed that among many double stars complementary colors may be recognized. Red and green companions are commonly seen; in some instances the beautiful contrast between yellow and purple is exhibited, while not unfrequently blue and orange stars are seen in company.

It was suggested that this peculiarity might in reality be rather optical than real. It is well known that where the brighter of two neighboring objects presents a well-marked color, the fainter very commonly presents the complementary color, though not in reality tinted with that hue. Artists are familiar with this peculiarity, inasmuch that some of the most striking effects of color in well-known paintings have been produced, not by a real intensity in the colors made use of, but by the judicious contrast of suitable complementary colors. Many of our readers have doubtless heard the story of the French painter who tried in vain to obtain a certain brilliant yellow tint, which he was desirous of introducing into a picture, and was about to set out for the Louvre, to see how other painters had mastered the difficulty,

when a passing cabriolet, the yellow wheels of which were picked out with purple, showed him how he could give brilliancy to the yellows he had been so little satisfied with. Thus astronomers thought the green companions of brilliant red stars, or the blue companions of brilliant orange stars, might be in reality simply white stars whose purity of tint is over-mastered by the effect of contrast.

But this idea had to be abandoned. It was found possible in several instances to hide the brighter of the two stars from view while the smaller still continued visible. When this was done there remained, of course, no effect of contrast. Yet in nearly every instance the color of the smaller star continued as well marked,—though not perhaps as pleasing,—as when both stars were visible together. Usually this plan of hiding one star while the other continued visible was effected by artificial means, a small cross-bar of brass or copper being introduced into the telescope's eye-piece for the purpose. But there is one instance in which the moon was made to aid the astronomer; and the story seems to us so interesting that we venture to give it in full:—

The star Antares, or the Scorpion's Heart, had long been a source of perplexity to astronomers. It is a brilliantly-red star, and has indeed been called the Sirius of red stars. But when the star is watched intently, especially with an instrument of adequate power, a singular scintillation of green light is found to obtrude itself most persistently into notice. It was suspected, at length, that this star must have a green companion, but for a long time none could be found. At length the late General Mitchell, with the fine telescope of the Cincinnati Observatory, detected a companion to the brilliant Antares, and, as had been suspected, this companion proved to be green. This, the first noteworthy achievement of the Cincinnati telescope, was a source of considerable gratification to Mitchell, until he heard that at another observatory two green companions could be seen. He searched again and again for the second green star, but could find no trace of it; and at last the welcome news came that the telescope of the other observatory was in fault. It possessed the undesirable faculty of dividing small

stars on its own account,—that is to say, it divided stars which really were single. Reassured of the fidelity of his telescope, General Mitchell re-examined the star. But he, and others who joined in the work, found it difficult to satisfy themselves as to the real greenness of the companion. The latter also was too minute an object, and too close to its primary, to be separated by the artificial device mentioned above. It happens, however, that Antares is one of those stars which the moon occasionally passes over as she travels along the zodiac; and the late Mr. Dawes, perhaps the most sharp-sighted observer that ever used a telescope, availed himself of one of these passages to settle the question of the tiny star's color. When the moon had hidden Antares, there, for a very few seconds, was the small companion shining alone in the telescope's field of view. Its color was then seen to be unmistakably green.

Another peculiarity of the colored stars is even more surprising. Some of them appear to possess the extraordinary power of changing color, as the chameleon does. Startling as this circumstance appears, yet the evidence on which it rests is too strong to be resisted.

We may remark, in the first place, that even among the brighter stars a similar peculiarity appears to exist. Sirius, which outshines nearly fourfold all the other stars visible in our northern skies, is now brilliantly white. Yet the ancients recognized Sirius as a red star. Both Ptolemy and Seneca expressly mention his ruddiness of hue; indeed, it is doubtless to this tint that the star owed its bad reputation among the ancients. Another star, called by astronomers γ Leonis, was white in Sir William Herschel's time, but is now golden yellow; and it happens that we are more certain than we could otherwise be about the reality of this change, because Sir William Herschel was rather apt to over-estimate the yellowness or ruddiness of stars, so that a star described as pure white may be suspected of having been somewhat bluish.

But some of the changes among the double stars are more striking even than these. We shall confine ourselves to one very noteworthy instance:—

In the year 1856, Admiral Smyth,

who took particular interest in the question of star-colors, called the attention of his son, the present Astronomer-Royal for Scotland, to the good results which might be secured if the latter observer examined the color of the stars from the summit of Teneriffe, whither he then proposed to betake himself to carry out his now celebrated "astronomical experiments." An observatory was not set up on the summit of Teneriffe, owing to insuperable difficulties, but the Pattinson telescope, of $7\frac{1}{2}$ inches aperture, was hauled up to the Alta Vista, and there mounted at an elevation of 11,000 feet above the sea-level. In pursuance of his father's wishes, Mr. C. Piazzi Smyth observed carefully the colors of several well-known doubles. Often he had the assistance of visitors in this work; and among the stars which he examined in company with others was one known to astronomers as η Herculis. He entered the colors of this double in his note-book as "both yellow, with tinge of bluish green." Admiral Smyth adds that "the tints of the two stars—though not quite the same at each examination—were judged to be common to both, and the impression was ratified by the evidence of some Spanish visitors at the astronomical aerie."

Now this particular double had been very carefully studied by the elder Smyth, and he had described the companion stars as "apple green" and "cherry red." He therefore re-examined the double, and there were the colors apple green and cherry red as before. He next applied to other well-known observers of double stars. Mr. Dawes wrote to him as follows:—"On referring to my color-estimations I find that they agree very nearly with your own." Lord Wrottesley pronounced the brighter star to be greenish, the other reddish. Mr. Fletcher said that "to his eye the brighter appeared light green, the other pink." Mr. H. A. Fletcher thought the stars bluish green and orange. Mr. Carr thought them light green and dull red.

These results, it will be seen, agree closely enough together, but are altogether opposed to the Teneriffe observations. And to add to the difficulty, it was found that in 1844 the Italian astronomer, Sestini, had seen both the stars

golden yellow, while his colleague, De Vico, "in the same place and with the same instrument, dubs them 'rossa e verde.'"

"Assuredly," as Admiral Smyth remarks, "all this is passing strange." It was quite impossible to refer the difference to peculiarities in the visual powers of the observers, because no known instances of color blindness correspond to this particular case. And besides, the list sent by Piazzi Smyth to his father showed in all other respects the most satisfactory accordance with the observations made by the latter. "A general agreement existed throughout the list," remarks Admiral Smyth, "even in some of the most delicate hues."

It may, however, be interesting to inquire what effect can be ascribed to different qualities of eyesight in this peculiarly delicate work of estimating star-colors. Admiral Smyth fortunately was at the pains to try the experiment, and the result will be found at once amusing and instructive:—

He placed a fine Gregorian telescope of 5½ inches aperture* in front of the south portico of his house, and invited a party of six ladies and five gentlemen to gaze upon the fine double star Cor Caroli. "They were each to tell me," he says, "but sotto voce, to prevent bias, what they deemed the respective colors of the components to be." First to step forth was the late Rev. Mr. Pawsey; "more addicted," says the Admiral, "to heraldry than to astronomy." "After a momentary watch, he flatly declared that 'he could make out nothing particular.'" The other spectators were more patient, and their respective impressions are thus noted down in the large album of the Hartwell Observatory. It is to be noticed that A means the chief star of the pair, B the companion:—

Mrs. Tyndale .	{ A. Pale white.
	{ B. Violet tint.
Mrs. Rush.....	{ A. Yellowish cast.
	{ B. Deadish purple.
Miss Honor.....	{ A. Yellowish.
	{ B. Lilac.
Miss Charlotte.	{ A. Light dingy yellow.
	{ B. Lilac.

* It is worth noticing that small reflectors are the best telescopes for showing star-colors.

Miss Emily....	{ A. White.
	{ B. Plum color.
Miss Mary Anne	{ A. Palish yellow.
	{ B. Blue.
Mr. Rose.....	{ A. Cream color.
	{ B. Violet cream (!).
Mr. B. Smith...	{ A. Pale blue.
	{ B. Darker blue.
Dr. Lee.....	{ A. Whitish.
	{ B. Light purple.
Captain Smyth.	{ A. White.
	{ B. Plum-color purple.

One would hardly imagine that so great a difference would be found in the estimates made by different persons of the colors of the same pair of stars. As Admiral Smyth remarks, "Whatever may be said about instrumental means, weather influence, atmosphere, or the position of the object, it is clear that in this instance all these properties were common to the whole party, and we doubtless all meant the same hues. It must be admitted, however, that the star was new to most of the spectators; and although," adds the gallant seaman, "some of the eyes were surpassingly bright, they had never been drilled among the celestials."

The experiment is one which might be repeated with advantage. The regular observer of the stars is not apt to look with particular complacency on the advent of visitors, but the most cross-grained of star-gazers might sometimes usefully apply the sight-seeing energies of his visitors in the way suggested.

It will be noticed that there is nothing in the above list of color-estimates to explain the discrepancies in the case of the star 95 Hercules. All the observers recognized a difference of tint between the two stars, and only one, Mr. B. Smith, failed to recognize the difference in the colors. It may be accepted, therefore, as certain that the components of this remarkable pair change in color to a very noteworthy extent.

Among the various explanations which were put forward to account for the enormous variety observed in the colors of the double stars, and also for the fact that these objects sometimes seem to change in color, there is one which, though incorrect, is too interesting to pass unnoticed.

The reader is aware that light is merely a form of motion; that it travels in a series of undulations, not by a trans-

mission of material particles; and that the color of the light depends on the length of these undulations. In ordinary cases light-waves of many different lengths travel together, just as we often see the face of the ocean traversed not by a series of uniform waves, but by a number of waves of many different sizes.

Now the idea occurred to a French astronomer named Doppler, that if we are rapidly approaching a star or receding from it, either by our own motion or the star's, its color ought to be changed. To a swimmer swiftly crossing a wave-tossed sea, the waves will clearly seem narrower or broader, according as he swims against or with them,—for, in the first case, he will pass them more rapidly. So, too, of the waves which produce sound. It has been shown that if an instrument which is giving forth a particular note is moved rapidly towards or from the bearer, the tone of the note perceptibly varies. When the instrument is approaching the hearer all the sound waves are apparently shortened, so that the tone appears more acute; and when the source of sound is moving away the tone appears more grave. Professor Tyndall remarks that when the whistle of the steam-engine is sounded as an express train rushes rapidly through a station, persons on the platform can detect a well-marked lowering in the tone of the whistle as the train, after rapidly nearing them, as rapidly passes away.

If we apply this principle to the case of light, we see that there might conceivably be a star which, while seemingly blue, or red, or green, was in reality sending forth light of another color. If a star were emitting those light-waves, for example, which produce a red color, and we were very rapidly approaching the star, the light-waves might be apparently so much shortened that they would produce the effect of blue light. In other words, the star would seem to be blue, though in reality it would be red. And so a blue star rapidly receding from us might appear red. And if a green star were sweeping rapidly round and round in a long oval path, first coming swiftly towards us and then moving as swiftly from us, it might change in color, apparently, through all the hues of the rainbow.

This was a very ingenious theory, but, unfortunately, like many other very ingenious theories, it was surrounded with great difficulties.

In the first place, it seemed inconceivable that any of the stars could be moving with the enormous velocity which the theory required. It must be remembered that to produce any apparent change of color a velocity was required which should bear an appreciable proportion to the velocity with which light travels. To return to the case of our swimmer: unless he were urging his way through the water with considerable speed he would not seem to cross the waves much more rapidly when he was facing them than when he was swimming with them. Nor, again, in the case of sound, can we notice any appreciable change of tone unless the motion with which the source of sound is approaching or receding is very great,—in fact, unless it bears an appreciable proportion to the velocity with which sound travels. But the velocity of sound may be looked upon as absolute rest compared with the tremendous velocity of light. We know that when a cannon is fired at some distance from us an appreciable interval elapses after our seeing the flash before the sound is heard. But light travels so swiftly, that while the sound of Big Ben is travelling from Westminster to Constitution Hill, light would travel a distance exceeding that which separates us from the moon. Eight times would light circle this earth on which we live in the course of a single second. It was reasonably doubted, therefore, whether the stars can be assumed to travel with a velocity which can be compared with the inconceivable velocity of light.

But this was not all. It was pointed out that even if the double stars were circling around each other with a velocity so enormous as M. Doppler's theory required, yet there would be no apparent change in their color. We have been supposing that the light waves proceeding from a star were all of one definite length. But this is not the case. The light of a star, like the light of our sun, is composed of waves corresponding to many different colors. This is as true of the colored stars as of the white ones. Their light, when subjected to

prismatic analysis, is changed into the rainbow-tinted streak which is called the prismatic spectrum.

Now this changes the nature of the case altogether. So long as it was supposed that only light waves of a certain length came from a star, then we might fairly compare those waves to a series of rollers crossing a sea over which a stout swimmer was urging his way, or to the uniform sound-waves which proceed from a railway whistle. But now we must alter the analogy altogether. We must suppose our swimmer to be in the midst of a sea across which waves of many different forms are travelling. We must imagine that not one sound is given out by the approaching or receding railway whistle, but a number of different tones. We see that this alters the result also. Our swimmer would no longer be able to recognize the effects of his own motion; nor would the nicest ear be well able to appreciate the change produced in the tones which reached it. And in the case of the star we see that while there could be a change, it would be one far more difficult to detect—even if nothing more remained to be said—than the change we considered before. As a matter of fact, however, it would be absolutely impossible to detect it, for a reason which remains to be noticed.

At each end of the rainbow-tinted streak called the spectrum, there are waves which produce no sense of light. Beyond the red end there are waves longer than those which produce red light, and these waves, while they produce the sensation we call heat, exert no effect on the visual organs. Beyond the blue end of the spectrum there are waves shorter than those which produce violet light, and these, though they produce certain chemical effects, are also not recognizable by the eye. Now, if all the light-waves were lengthened through the rapid recession of a star, some of the waves at the red end of the spectrum would be rendered invisible, being changed into heat rays. Beyond the blue end of the spectrum a number of chemical rays would be lengthened, and become visible as violet light. We see, then, that the rainbow-streak would remain absolutely unaltered. It would begin with the deepest visible red, and would pass through all the seven grada-

tions of color down to the deepest visible violet, just as it did before. And clearly the rapid approach of a star would be similarly ineffective in changing its apparent color.

Doppler's theory, therefore, though it had a singular fascination for many thoughtful minds, had to be given up.

But the time was approaching when the powers of the most searching instrument which the astronomer has yet been able to devise were to be directed to the solution of this difficulty. It had long ago occurred to Sir David Brewster that if the light of the colored stars could be analyzed by means of the spectro-scope, something might be learned respecting the cause of these beautiful and varied tints which they exhibit to the telescopist. This, be it remembered, was before the invention of what is now termed spectroscopic analysis. He could not have argued more justly than he did, however, had he known all that Kirchhoff afterwards discovered. "There can be no doubt," he remarks, "that the spectrum of every colored star wants certain of the rays which exist in the solar spectrum." Nay, he made an observation with a rock-salt prism, which may be looked upon as absolutely the first application of the spectroscopic analysis to the stars. He says, "In the orange-colored star of the double ζ Herculis I have observed that there are several defective bands. By applying a fine rock-salt prism to this orange star, as seen in Sir James South's great achromatic refractor, its spectrum clearly showed that there was one defective band in the red space, and two more in the blue space. Hence the color of the star is orange, because there is a greater defect of blue than of red rays."

Here is, in fact, the optical explanation of the whole matter. Subsequent observations by the experienced spectroscopists who now apply the power of the new analysis to the stars, have confirmed Sir David Brewster's observations in the fullest possible manner; and so far as the mere optical peculiarity is concerned, nothing further remains to be said. But it must be remembered that the new analysis deals with more than mere optical peculiarities. It is its distinguishing characteristic that it gives a physical interpretation of these peculiari-

ties. A certain dark line, or group of lines, is seen across the rainbow-tinted spectrum, and the physicist at once announces that the vapor of a certain element surrounds the body whose light he is analyzing. A certain set of bright lines appear as the spectrum itself of a given source of light, and he pronounces with equal confidence that that source is a certain incandescent vapor.

Now how does the spectroscopist interpret the fact which Sir David Brewster discovered?

It is, of course, not always possible to say of a set of bands crossing the spectrum of the light from a star, that it is due to the presence of this or that element, because as yet spectroscopic analysis is in its infancy, and we do not know the spectra of many of the elements so exactly as we hope to do; but the physicist knows very certainly that the presence of a set of bands indicates the existence of some absorbing vapors around the source of light. And this is precisely what Sir David Brewster did not know. In fact, Admiral Smyth, after quoting Sir David Brewster's observations, added, "We have no reason to believe that these defective rays are absorbed by any atmosphere through which they pass." At present we have not only reason to believe this, but we feel absolutely certain about it.

What we know, then, about the colors of the double stars is this, that they are

due to the existence of certain vapors around the stars. Why the two stars should be in many cases differently constituted, so that around one a different set of vapors should be suspended than around the other, we do not know. But we can readily understand that such differences should exist. Again, we cannot tell at present why these vapors should sometimes subside, as they must do when a star changes color. But this also is not difficult to understand, since we know that even our own terrestrial atmosphere is more heavily loaded sometimes with aqueous vapor than it is at others.

What we do know is, however, sufficiently interesting, without hazarding speculations about that which is unknown. We see that those beautiful objects which have been so long the delight of our telescopists can teach us much respecting the constitution of the universe. Out yonder, amid the unfathomable depths which the telescope only can explore, vapors are forming and dissipating according to laws not dissimilar from those which regulate the vapors of our own atmosphere. There is no quiescence in those far-off regions any more than our own neighborhood. Ceaseless change and endless variety characterize no less the universe of stars than the terrestrial scene with which we are so familiar.

Blackwood's Magazine.

CHATTERTON.*

In the middle of last century, in the year 1752, there was born, in the old town of Bristol, a child, perhaps the most remarkable of his entire generation, called Thomas Chatterton. He was a posthumous child, brought into the world with all that natural sadness which attends the birth of an infant deprived, from the very beginning of its days, of one-half of the succor, love, and protection to which every child has a right. The father might not be much to brag of—might not have done much for his

boy; but still there is nothing so forlorn as such an entrance into the world. And it was a hard world into which the boy came, full of the bitter conditions of poverty, with little to soften his lot. His mother was poor, and had to work hard for her living and his. She had no time to spare for him, to understand what kind of a soul it was which she had brought into the world. If nature even had given her capacity to understand it, the chatter of her little pupils, the weary toil of her needlework, absorbed the homely woman. The family to which she belonged was of the lowest class, and yet possessed a certain quaint antiquity

* Chatterton: a Biographical Study. By Daniel Wilson, LL.D. Macmillan: London. 1870.

and flavor of ancient birth. As ancient as many a great family of squires or nobles were the Chattertons. The only difference to speak of between them and the Howards was, that while the representative of the one held the hereditary office of Earl Marshal of England, the other held only that of gravedigger of St. Mary Redcliffe—but with a hereditary succession as rigid and unbroken. For a hundred and twenty years which could be clearly reckoned, and no one could tell how many more which had escaped in the darkness of time, Thomas had succeeded William, and William Thomas, in that lugubrious office. The pedigree, such as it was, was complete. They had buried all Bristol, generation after generation. The race, however, was perhaps beginning to break up in preparation for that final bloom which was to give it a name among men, for Chatterton's father had not held the hereditary place. It had passed in the female line to a brother-in-law, and he had made a little rise in the social scale, first as usher, and then as master of a free school close to the hereditary church of St. Mary Redcliffe. Such a position implies some education, though probably it was neither profound nor extensive. He held the office of sub-chamber in the cathedral at the same time; and was a member, it would appear, of the jovial society of tradesmen, deriving a certain taste for music from the choral services of the cathedral, which probably many of them had taken part in, in their boyhood, as choristers, which assembled in those days in certain well-known taverns. The most noticeable fact in his life, however, so far as his son is concerned, is his share in a kind of general robbery perpetrated by the community upon the muniment-room of St. Mary Redcliffe, where a number of old papers had been preserved for centuries in certain ancient oak chests. These chests were broken open in order to find some deeds wanted by the vestry, and were left, with all their antique contents, at the mercy of the gravedigger's family, or any other that could obtain access to them. The parchments were carried off in boxfuls, to answer all kinds of sordid uses. It was the usage of the eighteenth century. No doubt, if any accident had befallen St. Mary's itself, the citizens would have

carted off the stones to repair their garden-walls with. Chatterton the schoolmaster carried off the old parchments, covered copy-books with them, and kept the records of medieval life like waste paper about his house, ready to serve any small emergency. It was no such dreadful sin, after all, to have been followed by so strange and solemn a punishment. Was it that the ghosts of citizens whom a Thomas Chatterton had buried came clustering up, a crowd of angry spirits, to avenge the liberty thus taken with the yellow forgotten records of their wishes and hopes? The schoolmaster, thinking little of the ghosts or their vengeance, left his house full of those stolen documents, and thus left behind him, without knowing it, the fate of his unborn boy.

The widow was young—not more than one-and-twenty—when this child of tears was born. She was left as is all but inevitable in such circumstances, penniless, to struggle for herself as best she could. When such a necessity happens to a poor lady, our hearts bleed over the helpless creature; but it is common, too common, to demand any particular comment among the poor. Mrs. Chatterton took up a little school, and took in needlework. She had a little daughter older than her boy; she had women-friends about her working with her, helping her to keep her head above water, and probably, after all, was not so very much to be pitied for the loss of her jovial husband, who, according to the record, kept his good humor for his cronies out of doors. But her boy was a wonder and a trouble to the poor young woman. Probably it was her hope and longing from his birth that he should be educated as became the son of a scholar; and it broke her heart to find that “he was dull in learning, not knowing many letters at four years old.” These were the days of infant prodigies—for this stupidity on the part of the little Chatterton does not strike us with the same dismay as it struck his mother. There were, however, other puzzling peculiarities about the child. “Until he was six years and a half old, they thought he was an absolute fool,” says his mother's most intimate friend who lived in the house. He was sent back upon her hands by his father's successor in the free school,

somewhere about that early age, as an incorrigible dunce. Poor little bothered melancholy boy! he would sit alone crying for hours, nobody knew why—and the sense of disappointment so natural to a female household finding out to its dismay that the little male creature belonging to it was not (as it hoped) a creature of overwhelming ability, does not seem to have been concealed from the child. "When will this stupidity cease?" his mother cried, when "he was in one of his silent moods." She had little pupils of her own, brisk little girls, learning their lessons, no doubt, with all the vivacity of town children kept alert by the tide of ordinary life going on around them; and the contrast must have been very galling to the young mother. At seven years old, we are told, "he would frequently sit musing in a seeming stupor; at length the tears would steal one by one down his cheeks—for which his mother, thinking to rouse him, sometimes gave him a gentle slap, and told him he was foolish." No doubt it must have been very trying to the poor soul: her only boy, the son of a great scholar, and nothing more than this coming of him! One can forgive Mrs. Chatterton for giving that gentle slap to the weeping child over the fire. It is hard upon a widow to be driven to confess to herself that there is nothing more than ordinary—nay, perhaps something less than ordinary—about her fatherless boy.

This dulness, however, lasted but a short time. With a certain curious wasteful Vandalism which seems to have been peculiar to the age in small things as well as great, Mrs. Chatterton, who made thread-papers of the old parchments out of St. Mary's, tore up for waste paper an old music-book of her husband's. The moody child, sitting by, was suddenly attracted by the capital letters, which were illuminated, the story goes; so that it must have been a valuable book which his mother was thus destroying. This was the first step in his education. He learned to read thereafter from a black-letter Bible, and never could bear to read in a small book. In this quaint way the first difficulties were got over. One would think that to acquire modern English afterwards would have been almost as difficult as learning a new language; and the reader is tempt-

ed to wonder how any one in that homely, ignorant sempstress-household should have been sufficiently at home in the black-letter to make a primer of it. Such, however, are the recorded facts. And what with the illuminated capitals and the black-letter book, the little fellow left off mooning, and woke up into the light of common day. "At seven he visibly improved, to her joy and surprise; and at eight years of age was so eager for books that he read from the moment he waked, which was early, until he went to bed, if they would let him."

So early, it would appear, as this age, the child had appropriated to himself a lumber-room in which, among other rubbish, were the boxes into which his father's spoils of old parchment had been turned; and here he was accustomed to shut himself up with such treasures as pleased him most. He had a turn for drawing, not unusual in children; and, instead of more ordinary playthings, he had collected "a great piece of ochre in a brown pan, pounce-bags full of charcoal-dust, which he had from a Miss Sanger, a neighbor; also a bottle of black-lead powder, which they once took to clean the stoves with, making him very angry." With these materials, and the unceasing supply of parchment to daub them on, what delicious begrimings the little artist must have made! Here, for the first time, the child becomes intelligible—perhaps an infant poet already, as some assert; but, what is better, an eager little boy, blacked all over with his hideous pigments, and making, no doubt, horrible pictures upon his parchments and his walls and his floor. They could not get him out of the room in which abode all this precious dirt. Sometimes the key was carried off, out of anxiety for his health, and his clothes, and his little grimy face; but then the little man fell to kissing and coaxing till he got it back again. So long as he remained in Bristol this garret was the refuge and comfort of his life.

When Chatterton was nearly eight years old he became a scholar of the Bluecoat School of Bristol, an institution called Colston's Hospital, founded by a merchant of Queen Anne's time, and therefore still in its youth. The dress, but unfortunately nothing else, was copied from that of Christ's Hospital.

Bristol had already a grammar-school, and the supplementary institution was for poor children, and not by any means intended as a ladder to help them to ascend. They had the blue gown and yellow stockings, and funny little round cap, called, apparently, a tonsure, in the Bristol school; but they had not the liberal education which has made the London Bluecoat School so famous. The children were to be "instructed in the principles of the Christian religion as they are laid down in the Church Catechism," and not demoralized by Latin and Greek. Twice a-week this grand epitome of doctrine was to be expounded and brought down "to the meanest capacity" according to the rules of the Hospital: poor fare enough for the little genius whom poverty shut out from any better training. The child, we are told, was elated at his election, "thinking," says his foster-mother, "he should there get all the learning he wanted; but soon he seemed much hurt, as he said he could not learn so much there as at home." Thus curiously came the first check upon his precocious hopes. No doubt the vague fame of his father's learning had been long held up before the boy, and it is equally certain that many of the old documents with which he had surrounded himself must have been in Latin, puzzling and tantalizing him in his childish eagerness. Perhaps, with a child's confidence in his own powers, he had felt equal to the task of puzzling out the dead old solemn language by himself amid his ochre and his charcoal in the lumber-attic; and to come to nothing but the Catechism was hard. To be sure a certain amount of reading and writing must have accompanied the theology, and the life does not seem to have been a particularly hard one. Every Saturday he had holiday, and came home rejoicing at noon to rush up to his attic and lose himself in his old dreams. When he came down to tea he was all over stains of black and yellow. There, at least, he must have been happy enough—though it was hard to get him to meals; and even tea-time, fond as he was of tea, was not so attractive as his parchments and his ochre. Yet the boy apparently was at this time, to all spectators, an ordinary enough boy, with nothing moody or abstracted about him. He is de-

scribed as a round-faced rosy child, with bright gray eyes, light hair, and dimples in his cheeks; very frank and friendly, making acquaintances with a natural ease scarcely to be expected from his other peculiarities, very affectionate at home, though impatient by moments, a characteristic not unusual in a school-boy; and with every appearance of entering quite cheerfully, without any clouds brooding about him, upon the course of a commonplace life.

There is, however, one wonderful influence to be taken account of in his education, which had little to do with the training of his contemporaries. Mrs. Chatterton's little house was opposite to the noble church of St. Mary Redcliffe, and from his earliest infancy her boy had been accustomed to totter about that wonderful place. His uncle was sexton, and no doubt the natural pride of descent, pride common to all classes, had early made him aware that his ancestors for centuries had been its servants. It opened its great aisles to him full of whispering stillness, full of weird effects of light, with all those stately combinations of exquisite form and color which the age was too prosaic to appreciate, but which went into the very depths of the young musser's heart. He was born with a thirst upon him for everything that was noble and stately and splendid; and here was his palace, where nothing narrow confined his imagination, and nothing mean distressed his fine sense of beauty. What a wonderful refuge—what a home for the dreamy childish imagination which had no words to explain itself, and nobody to understand, could it speak! "This wonder of mansions," he called it in later days, when he got utterance; and the very title is significant, for it was the boy's mansion—his house in which he lived and mused. There a silent population—not mean and imperfect beings like the homely folks that walked and talked out of doors, but stately splendid images saying nothing, leaving all to an imagination rich enough to make up every deficiency—was around him; mailed knights, and ladies in veil and wimple—faithful mates lying solemn side by side through all the silent ages, names once so full of meaning, now significant only to the little watcher with big eyes full of thought

that brooded over them. He is supposed to have made a little picture of this house of his dreams, representing himself in his blue-coat dress, led by his mother, in the midst of that familiar scene. Even earlier than the blue-coat era, the little fellow, when missed from home, would be found seated by the tomb of William Canynge in the great silence. And here, there can be little doubt, arose the first beginnings of that visionary friendship which was the soul of all his after-life, his favorite illusion, and, as severe critics have thought, his crime. We have but to turn to our own nurseries, if indeed the remembrances of childhood are too far past to be recalled with a still more personal force, for an explanation of that first germ of Rowley which, one cannot tell when or how, dawned upon the mind of Chatterton in his childhood. Such dreams can scarcely be called rare among children. The present writer has by his side at this present moment a healthy, sturdy little boy, not overcharged with imagination, who lived for several of the first years of his life in constant communication with an imaginary friend, a very splendid, princely individual, whose sympathy consoled him in many a baby trouble. This child was free to talk of his beloved companion, who gradually disappeared behind the growing realities of existence, and now is as a dream to its creator. But it is easy to realize how such a lonely little dreamer as the boy Chatterton would cling to and expand into ever fuller and fuller being the image which he loved. While he sat by Canynge's tomb, in the speechless desolation of childhood, all alone, knowing that there was nobody in all the world with sufficient leisure to consider his wants and console his despondencies,—nobody that could divine what he meant, or shed the warmth of sympathy about his little life,—what wonder if the kind shadow which had full leisure for him and all his affairs—time to weave histories for him, to beguile him out of the present, to fill his ears with melodies which seem to come across the ages—should grow and grow as the boy grew, strengthening with his strength? All these long imaginary conversations which we suppose every intelligent child holds with a little crowd of interlocutors, a mere expenditure of

superabundant fancy, must have been concentrated by little Chatterton into the one person of the kind priest, who was the companion of his soul, an ideal father to him, a teacher such as he could never have in the flesh. How the forlorn little fellow must have brightened unawares as he felt the soft steps of his visionary friend coming down the long stately aisle from the veiled altar! Had he just been saying a mass for William Canynge's Christian soul? Did he come with the serious calm upon him of those uncomprehended mysteries? When Priest Rowley appeared out of the religious light, the little dreamer was no longer alone. To any ordinary child, Rowley, in all likelihood, would have had existence only as the consoler, the depositary of childish grievances, the sympathetic listener to all trouble. But to Chatterton he was more. The boy did not know in these early days that he was himself a poet; but he felt by instinct that the friend was who bent over him in visionary intimacy and consolation. When he was called back unwillingly to his little mean home, to the meals which he was not hungry enough to care for, to the monotonous hum of the lessons and litter of the dressmaking, and to the mother and sister, who were all too busy to do more than scold him for his absences, sometimes good-humoredly, sometimes sharply, but never with any sense of the unseen world, which was reality to him—what wonder if the boy was like a being dropped from another sphere? The women at their work were not to blame. How were they to divine, as they sat and cut out their old-fashioned sleeves and bodices from patterns made out of the parchments of the muniment-room, that these were Rowley's parchments, written all over with a poetry yet illegible, but destined to grow clear in time? They would give him "a gentle slap" to rouse him as they passed; they would be driven to momentary impatience by his meaningless silent tears. What did it all mean? when would this stupidity cease? But perhaps there was a wedding order on hand—perhaps the doleful black, which it was still more needful to get finished. They had to sit up into the night working for him, to mind their business, to thread those weary needles, and stitch

those long, long lines of endless trains, or get through miles of frilling before night. It was no fault of theirs, poor souls! They gave him all they had to give, and did not even refuse the indulgence of that attic solitude, where Priest Rowley lived as much as he lived in the church, and where such tales of wonder waited the tingling ears of the little lonely boy.

It is hard to realize the possibility of a very severe intellectual disappointment at eight or even nine years old; but yet the difference between the practical and the ideal, between the enthusiasm of learning into which he was prepared to plunge and the routine of the merest schoolboy-life, seems to have restored something of the despondency of his early childhood to this strange little scholar. His mother and her friends began to grow anxious about him again when he shut himself up in his attic through the long holiday summer afternoons when every other Bluecoat boy was enjoying the air and sunshine. They made him angry by attempts to invade his solitude. "I wish you would bide out of the room—it is my room," he cried, in boyish rage, thrusting his parchments out of sight. The women even alarmed themselves with the curious fancy that his ochre and charcoal were intended to stain his own face in order that that he might join the gypsies—the strangest notion, considering the habits of the studious boy; but "when he began to write poetry he became more cheerful," his sister testifies. All through that childhood which represents youth in his short life he had been struggling with the silence round him, a little soul in prison known to no one but his Rowley; but when the gift of utterance came his chains began to break. When he was only ten he seems to have been confirmed, a curious instance of seeming maturity; and following on that event which appears to have roused in him all the half-real half-fictional solemnity so often seen in children, he wrote his first poem, or at least the poem first published—a little "copy of verses" upon the Last Day, which is only remarkable as the beginning of his poetical efforts. It was published in "*Felix Farley's Journal*," a local paper, which afterwards received many of his productions. From that

moment his restless pen was never still. A few months later he discovered with all the glee of a schoolboy that he could make it a weapon of offence, and immediately rushed at his foes, or at the innocent persons whom he chose to set up as adversaries. The temptation of irreverent youth to assail local dignities of all kinds, and to reap the quickly-got satisfaction of parochial stir and commotion, is always very potent; and a poet of eleven would have been a stoic indeed had he been able to withstand it. He fell upon "Churchwarden Joe," who had pulled down a beautiful cross in the churchyard of St. Mary, and upon Apostate Will, a less distinguishable butt, with wild delight. These early satires reveal to us all at once a whole little local world beyond Mrs. Chatterton's house and the lumber-room on the one hand, and the grand aisles of St. Mary's on the other. There are the bustling parish authorities, scorned yet feared, and all the babbling bee-hive of a school, and the masters, some despised and some beloved. And there is the half-seen audience of the parish behind reading the paper and chuckling over the allusions which everybody can understand; the whole stirred up and set into motion by the boy in his yellow stockings, about whom already there are strange rumors afloat, and who hugs himself in his secret, and feels, no doubt, a certain judiciary power of life and death, now the paper is open to him, and all Bristol lying helpless ready to become his victims. It says a great deal for Chatterton's better nature that a temptation so overwhelming at his age, and so potent on the untrained intelligence at all times, should have at least temporarily passed away from him. It was his priest who drew him into the gentler, more harmonious regions of the past.

He was only twelve, say various witnesses, when he took to an usher called Phillips, his favorite master, a curious manuscript poem, which he had found, he said, among the parchments taken by his father from St. Mary's. Phillips was a kind master, sympathetic and beloved; and he is said to have had some poetical knowledge and faculty: but he was not learned in ancient MSS. He gazed at this curious production with mingled consternation and curiosity. A school-

fellow who was present, and who afterwards attained some small local eminence as a poet, describes the event with something of the contempt of a man who knew himself to be quite as good as Chatterton. "For my own part," he says, "having little or no taste for such studies, I repined not at the disappointment. Phillips, on the contrary, was to all appearance mortified,—indeed much more so than at that time I thought the object deserved,—expressing his sorrow at his want of success, and repeatedly declaring his intention of resuming the attempt at a future period." The MS. this informant asserts to have been the ballad of "Elinoure and Juga," certainly a very extraordinary production for a poet of twelve, and which was not published till five years later. It is one of the so-called Rowley poems, and if not the first written, was at least the first submitted to any eye but his own.

Probably up to this time no definite idea of the dangerous course upon which he was entering had come into the schoolboy's eager mind. We cannot imagine for an instant that any deliberate deceit was intended. It was one of the innocent mystifications, strange purposeless webs, half of pure imagination, half of mischievous intent to bewilder, which are so common among children. By this time his visionary companion had developed into clearer and clearer proportions. Nothing in life had come to him with sufficient force or vividness to withdraw him from the society of his gentle, unreprieving, always sympathetic, spiritual associate. When even the mother was unkind, and the good schoolmaster hard upon him, Rowley's countenance was never averted. From the first germ of the benign shadow in the great silent church whole histories had grown. The boy's imagination had worked out every accessory of the picture. The principal figure was Thomas Rowley, a parish priest, not a friar—the name probably seized upon at hazard from some chance roll of ancient names—the story made out bit by bit,—a friend of noble Master Canynge's, he of the great tomb—nay, more than a friend—a brother dearly beloved. And then Canynge, too, found his place on the canvas. In short it was no canvas, but a magic mirror, into which those mystic

figures floated, now one by one, now in a stately crowd. Naturally the priest became a man of letters, because in the mind of the dreaming boy there was nothing so high or honorable; and Canynge grew by his side into the enlightened patron, the head of the gentle company. What things they did, what witty conversations they held, what stately masques and splendid revels were heard before them! Chatterton was one of them as he mused. He saw the correspondence of his visionary friend with the abbots, and canons, and even bishops, who loved song like himself, and were ready now and then to throw in a supplementary lay. He assisted at the performance of "The Tragical Entlude," and many another private drama represented before the refined society of Rudde House, William Canynge's dwelling. Not only names came easy to his fancy, but he was ready to invent a whole lineage, build a special convent, construct a new world, if needful, to justify the existence of the various personages who were grouped round Rowley. His whole mind and leisure must have been occupied by this wonderful dream. It saved him from all boyish and poetic yearnings after some one to love, respect, and honor in the outside world. He had Rowley for all these higher uses of the soul, and he was free, accordingly, to treat with a frank contempt the actual visible, but not half so real, men whom he saw around him every day.

None of the critics who have examined into the strange problem of this double existence, seem to have realized the phenomenon as in fact a sufficiently common one, elevated out of resemblance to the ordinary only by the genius of the boy. He was in the midst of a perpetual drama, daily spreading further and further round him. His imagination was delighted with a constant succession of beautiful and curious visions. In his garret, all by himself, he was in the midst of the finest company. One festivity led to another. There were tournaments of arms and tournaments of song, and a thousand pageants, which swept him with them in their splendid passage. No doubt the first daring touch by which he made Rowley's poetry into actual verse, gave a certain

thrill to the boy. The actual and the visionary clashed, and that tender fiction of the heart appeared, as it were, out of doors, where men, without any just powers of judging, might call it falsehood and forgery. But he was so young that this fear could not have appalled him much—twelve years old; and no doubt he felt a certain longing to make known to somebody what a splendid world he had possession of—how much wiser and cleverer he was than his neighbors—and what a horde of secret treasure he had upon which he could draw at will; a desire which was all mixed up and blended with a child's romancing, its uncertain sense of the boundary between the false and the fanciful, and love of everything dramatic and marvellous. This, according to every canon of human nature, and especially of a child's nature, seems to us the natural interpretation of the wonderful fiction of Rowley's poems. Rowley, no doubt, had come into being years before, to the much consolation of his little companion's soul.

We are not told whether he interpreted to Phillips the wonderful MS. which so much puzzled him; nor, indeed, has anything but the date of its first exhibition, and the "mortification" of the usher when he found himself unable to make it out, been preserved to us. A little later Chatterton distinguished himself by a piece of fiction of a less innocent but more amusing kind. At the foot of the bridge which he had to cross every Saturday on his way home, was a pewterer's shop, kept by two men called Catcott and Burgum. They were not of the modern race of shopkeepers, prone to villas in the country and a discreet silence as to their means of income. They were men not ashamed of the counter, ready to hold their own with any comer; important in their own eyes, and not unnoted among their townfolk. Burgum was the less elevated of the two, not born a citizen of Bristol, and possessing little education but much vanity. Catcott, a clergyman's son, was a man of good connections, such as would scarcely be consistent nowadays with the pewterer's shop. His brother was a clergyman in the town, and he would seem to have had a certain place in society; but his

love of display and notoriety was known to everybody. He was so fond of self-exhibition that he rode his horse over the planks of a half-built bridge, in order to have the honor of being the first to cross it; and, with equally silly daring, had himself hoisted up to place a pewter tablet under the crowning stone of the new church steeple, by way of preserving the record of his name to all posterity. Such a pair would seem to have been marked out for the tricks of any mischievous schoolboy; and Chatterton was full of mischief and delight in his own skill and powers of mystification. No doubt the boy was known to both of them, as everybody, even a charity-boy, becomes known in a limited local circle. One day, when it is supposed he was about fourteen, he suddenly entered the shop he had passed so often, and disclosed a great discovery he had made. He had found the De Bergham pedigree amongst those wonderful inexhaustible papers of his. The shop was in the process of rebuilding; and Burgum, poor soul! was probably worn out by builders and painters and their lingering workmen when this wonderful news was brought him. He fell at once into the snare. No wondering sense that a Bluecoat boy was an unlikely person to make such discoveries seems to have crossed his mind, any more than it did those of greater critics at a later period. He accepted the De Bergham pedigree for gospel, and begged a sight of it. Within a few days he received "an old piece of parchment about eight inches square, on which was the shield, blazoned and full of quarterings, of the great family to which he was said to belong, and a first instalment of the pedigree. This document was one of the most extraordinary kind. It set forth the arrival in England with the Conqueror of a certain knight called Simon de Seynete Lyze or Senliz, whose marriages and great deeds are described with solemn gravity. It had a heading in large text to the effect that it was an "Account of the Family of the De Berghams from the Norman Conquest to this time, collected from Original Records, Tournament Rolls, and the Heralds of March and Garter's Records, by Thomas Chatterton." It was enriched with marginal references, done in the very irony

of mischief. "Roll of Battle Abbey." "Exstemma fam. Sir Johan de Leveches":—Stowe, Ashmole, Collins, Dugdale, Rouge Dragon, Garter, Norroy, and the Rowley MSS. being quoted as authorities. The lad even went so far as to cite "*Oral* ch. from Henry II. to Sir Jno. de Bergham," as one of the sources from which he had drawn his materials. There were Latin notes to this wonderful document, which, as at present to be seen, are translated in the handwriting of Barrett, the author of a history of Bristol, one of the leading antiquarians and *virtuosi* of the neighborhood. These translations mark the curious fact that a man of some learning, and pretending to some acquaintance with the real antique, was actually taken in by the pedigree, with its circumstantial records and dazzling blazonry. As for Burgum, who had no learning at all, he conceived no doubt on the subject; but with his heart beating proudly in his breast, presented the boy with five shillings for his timely and wonderful discovery. Never was there a more successful practical joke; and Chatterton must have left the shop swelling with fun and triumph, with his crown-piece in his pocket and delight in his heart.

He had not, however, done with the pewterer. The pedigree thus miraculously found brought down the family of De Bergham only to the thirteenth century, between which and the time of Henry Burgum there might be many slips. And accordingly, the discoverer, too lavish in his fertile powers of invention to cut any thread short which he could spin out, caught up the uncompleted tale, and gave its continuation with a still more lavish hand. What so easy as to sow distinguished personages into the roll which could be subjected to no test but that of imagination? Accordingly he pauses in the commonplace record of knights and ladies to interpolate a certain Master John de Bergham, a Cistercian monk, who "was one of the greatest ornaments of the age in which he lived," a poet, and translator of the "*Iliad*," whose talents had been fully recognized in his own century, though grown somewhat dim in the eighteenth. "To give you an idea of the poetry of the age," said this strangest of heralds, "take the following piece, written by

John de Bergham in the year 1320." And here follows the "*Romaunte of the Cnyghte*," one of the most archaic of all the poems, which, as well as a Latin letter from the University of Oxford, commending the high qualities of Friar John, is introduced into the very heart of the pedigree. We do not need to add that the Latinity of this letter, as well as sundry other scraps which shall follow, was of the most doubtful kind. The second part of the De Bergham pedigree produced another crown for Chatterton's empty pockets, and no doubt he felt himself thoroughly well paid for the moment. A great deal of quaint indignation has been wasted on this piece of most elaborate nonsense. Such a trick, if performed by any public-school boy of the present day, would meet with more laughter than reprobation; but Chatterton's critics have made it out to be "indescribably ignorant and impudent," and no better than a piece of swindling. Poor fourteen-year-old boy! It was indescribably clever and mischievous, and, no doubt, would have been punished by a hard imposition had such a trick been discovered by a strong-minded master at Eton or Harrow; but poor Chatterton was not permitted the privileges of his boyhood. "It may console the reader who sympathizes in such virtuous indignation," says Dr. Wilson, who entertains other notions, "to know that the pedigree did not after all prove a bad investment. The copy-books, containing along with it and its '*Romaunte of the Cnyghte*,' some of the earliest transcripts of the Rowley poems, were ultimately disposed of by the family to Mr. Joseph Cottle for the sum of five guineas." So thorough, however, was the belief of the descendant of the De Berghams in his new-found pedigree, that he actually submitted the document to the College of Heralds for confirmation—a step which, however, it is supposed was not taken till after Chatterton's death.

By this time the boy had begun to make friends out of his own sphere. The antiquarian Barrett, who was laboring busily at a history of Bristol, which has been covered with confusion, yet almost introduced to fame, by the fact that half its assertions are made on the authority of the Rowley MSS., began to traffic

with him for his wonderful stock of papers, and "used often to send for him from the charity-school, which was close to his house, and differ with him in opinion, on purpose to make him in earnest, and to see how wonderfully his eye would strike fire, kindle, and light up." At one time a hope of studying medicine under the care of this gentleman, who was a doctor, seems to have crossed his mind; and it is evident that he was permitted to read many medical works, and to pick up some superficial knowledge of the science. Barrett is much blamed by Dr. Wilson for his want of insight into the poet's character, and for having repulsed his confidence and lost the opportunity of leading him safely into the paths of greatness. But notwithstanding all the sympathy we feel for Chatterton, it cannot be denied that he hoaxed his friends all round with charming impartiality, and afterwards satirized them with a plainness of speech at which it is natural enough to suppose they must have winced. Had anybody been able to foresee the blackness of darkness so soon to overtake him, the wild despair and miserable fate of a boy so full of exuberant life and power and prodigal energy, who can doubt that Barrett and Catcott and the rest would have used their possibilities of help in a different way? But nobody ever foresees such wonderful and tragic breaks upon the ordinary routine of existence; and the boy in his rash precocity, and the men in their commonplace indifference, went their way, roused by no presentiment. A certain wonder, one would think, must have grown about the lad who could produce such treasures at a moment's notice; but it does not seem to have affected the minds of his schoolfellows, who dabbled in small verses themselves, and were, each boy to his own consciousness, as good men as he. It is curious to find that none of the admiring devotion with which every gifted schoolboy in a higher class is regarded by some at least of his comrades, seems to have attended Chatterton. Probably this is explained by the lower range of breeding and training, and that strange insensibility to personal influence and high esteem for self, which make the tradesman-class everywhere the one least subject to any generous

weakness of enthusiasm. The Bristol men who were boys with Chatterton were all indignant at the mere suggestion that Rowley and he were one. They were affronted by the idea. It was a personal injustice to them that their schoolfellow should be made out a genius. They had no objection to his acknowledged writings, which they considered no better than their own. But Rowley's poems, they were sure, with an indignation which had a touch of bitterness in it, were no more his writing than theirs. He had friends, but he had nobody who believed in him—a curious distinction of the class in which he was born. Had he been a gentleman's son, no doubt a young guard of honor, schoolfellows, college friends, half of the youth he came across in his career, would have been ready to risk their life in proof of his genius. And the chances are, that in these circumstances the lad himself would never have been tempted to the fierce satire and bitter scorn of many of his youthful productions. But it is necessary for us to accept him as he is, a poor charity-boy among a set of young apprentices, Bristol tradesmen in the bud, all confident of being as good as he or as any one, and capable of no worship of the greater spirit in their midst.

After the era of the pedigree, Chatterton seems to have gone on with a still stronger flight. He cannot have been more than fifteen, for he still wore the dress of his school, when he met with the other partner in the pewterer's firm. No doubt Burgum had exhibited proudly to his partner the proofs of his own splendid descent, and pointed out the passing schoolboy to whom he owed it; and Chatterton probably was attracted towards Catcott by the achievement above recorded, his crossing of the half-built bridge upon planks laid from pier to pier, with a daring-do worthy of any knight of romance. This event took place in June, 1767; and in July of the same year the lad left school, and put off his yellow stockings and tonsure-cap; so it must have been on one of the summer days intervening that the two first met. Mr. Catcott was walking with a friend in Redcliffe Church when he was informed of the fact that several ancient pieces of poetry had been found there, and were in the possession of a "young person"

known to his informant. This news prompted him to seek Chatterton, perhaps to call him in as he went past into the shop already so well known to him, which contained such a monument of his skill. The boy showed not the least reluctance to speak of his discoveries; and, according to Catecott's statement, gave him at once "The Bristowe Tragedie; or the Deth of Sir Charles Bawdin," and several of the smaller poems. Probably they were but submitted to his criticism and approbation. He was a man with a library, and every possibility of getting at books was precious to the boy; and this was the commencement of a curious kind of friendship, in which there seems to have been little regard on the one side or the other, but a considerable attempt at mutual profit. In Catecott's hands many of the MSS. remained after Chatterton's death, and he does not seem to have made a generous use of them; nor did any gleam of insight into the strange story occur to the eyes of the self-occupied shopkeeper. He too received Rowley with undoubting faith. The boy was but a charity-boy—one of the many blue-coated urchins that swarmed past the shop-windows all the year round, and broke the panes, and got in everybody's way. Genius! Mr. Catecott would have laughed at the idea. The boy was old Chatterton's grandson, the gravedigger, and no doubt had got at the poems exactly as he said. Not the remotest suspicion of a hoax seems to have disturbed the composure or self-conceit of these shallow men. And thus the boy went and came—to Barrett, who probably gave him an occasional half-crown for the bits of curious information about old Bristol which he brought him from time to time, and who liked to see the light flash up in his great gray shining eyes; to Catecott, who received his MSS. with pompous pretended knowledge; and by and by to Catecott's clergyman brother, and other worthies of their set, no doubt with a wonder growing in his mind that no one divined the real source of all these marvels. One can imagine the lad's half-trouble, half-delight, in thus bewildering so many—and at the same time the wistful sense of uncomprehended power which must have grown upon him and driven him back to his visionary asso-

ciates. We are told even that he tried more than once to confide in Barrett, faltering forth an admission that the fine and vigorous poem called the "Battle of Hastings," which he presented to the antiquary in his own handwriting, was actually his own composition, and "done for a friend." Barrett, wise man of the world, not to be taken in by such fictions, laughed at the boy. He pressed him to produce the rest of the poem, which was accordingly done at intervals, in fragments, as they could be composed; and pressed him still further for the original MS., which the lad—amazed, disappointed, and yet filled—who can wonder?—with a certain mischievous contempt for the man who swallowed every fiction he chose to bring yet laughed at the truth—instantly began to fabricate. His docility in such a case is very comprehensible. All the fun of his school-boy nature, and all the scorn with which an inexperienced young soul looks upon stupidity and intellectual blindness, must have moved him to fool his patron to the top of his bent. It was the man's sin, if any real sin was in it, and not the boy's.

In July, 1767, Chatterton was transferred from school to the office of an attorney, to whom he was bound apprentice, the fee being supplied by the Hospital. He was to have no wages, but to be clothed, lodged, and maintained by his new employer, a Mr. Lambert—to take his meals with the servants and sleep with the footboy; an arrangement which was supposed by all parties very satisfactory for a Bluecoat boy. So far as we are informed, he himself does not seem to have been any way revolted by it as we are; for it must be remembered that Chatterton as yet had only a boy's glorious sense of being able to do almost anything he tried—the first and perhaps the most delicious sensation of genius—without knowing what was his own real standing among all the owls and bats who were so much more important in the world's eye than he. His office hours were from eight o'clock in the morning till eight in the evening, with an hour in the middle of the day for dinner, and he was expected to return to his master's house every night by ten o'clock. Two hours in the evening were thus all he had for recreation of any kind, and

these he almost invariably spent at his mother's house. During the two years he remained with Mr. Lambert he was only once late in returning. These facts effectually dispose of all the insinuations made against the poor boy's character. He never drank, avoiding even the most modest potations—was fond of tea, and not, it would seem, without an innocent liking for confectionery, simplest of all the tastes of youth. Twelve hours in the solitude of the office, where now and then the footboy or a maid from Mr. Lambert's would come on some pretended errand to make sure that he was there, for the attorney himself was almost always absent; two hours in the evening spent with his mother among her shreds and patches, or in the beloved retirement of his lumber-room. Never did monk observe a severer routine of duty; and yet the poor boy was called a profligate: no imputation was ever more unjust or untrue.

But it would be wrong to suppose that this intermediate period was a loss to Chatterton. Mr. Lambert's business seems to have been a very light one, and his apprentice must have been as much office-boy as clerk—"he had little of his master's business to do, sometimes not two hours in a day," says his sister; and though he was supposed to be "improving himself in professional knowledge" by copying precedents during the remainder of the long lonely days, there was plenty of time left for more congenial work. "Nearly four hundred closely-written folio pages" of these precedents are left to prove that he did not neglect even this musty work—which is no small tribute to his sense of duty; for the master was absent, and there was no one to keep him to the grindstone, and so many inducements to drop away. The office contained, besides a library of law-books, a complete edition of Camden's "Britannia;" and his friends whom he supplied with a succession of wonders lent him books at least, which was some small return. A number of dictionaries of Saxon and early English, Speght's "Chaucer," and various old chronicles, fed his mind and formed his style. We are told that he compiled from these authorities for his own use an elaborate glossary in archaic and modern English, which was his constant compan-

ion. There can be no doubt, as Sir Walter Scott suggests, that to master a style so cumbrously and artificially antique must have taken almost as much time as the learning of a new language; but yet there is a great deal in the trick of such a mode of writing, and we are inclined to believe that the real labor must have been in the compilation of the glossary, which made the rest easy enough—especially as the antiquity of the Rowley poems is entirely artificial; and the young poet does not seem to have felt that any study of the sentiments or forms of expression natural to the period was required to give an air of truthfulness to his productions, greedily and unhesitatingly as they were swallowed by all the authorities round him. The fact seems to have been that a certain impetuous, almost feverish, haste and impatience had come upon the lad unconsciously to himself. The silent moments flew over him as he labored in that dreary little office. Something in him, something instinctive, inarticulate, incapable of giving any warning of what was to come, had been impressed by a sense of the shortness of the time and the quantity of work to do. We are informed repeatedly that the attorney on his visits to the office tore up pages of poetry which he found in his clerk's handwriting, and which he perceived was not law-work, nor within his range of comprehension; so that it is perfectly probable that a much larger quantity of the Rowley poems was produced than those which have reached us. In his ignorance and innocence most likely the boy was swept along by an eager desire to set Rowley, and his time and ways and everything surrounding him—the friends and citizens and noble knights who were so much kinder, nobler, and more true than anything in the eighteenth century—fully before his audience. He wanted, with a certain human longing at the bottom of all his childish trickery and intrigue, to convey to others some glimpse of that splendid visionary world which, from his earliest years, had surrounded himself. And he thought he had succeeded in doing so, poor, brilliant, foolish boy of genius! He thought his painfully-selected, uncouth words, and wonderful spelling, were no masquerade, but gave a real

representation of the life he wanted to make apparent to the world. Nothing could show more clearly his unsophisticated simplicity; for he believed in their truth himself as fervently as the most credulous of all his dupes,—not in their truth of fact as the poems of Rowley, for that, of course, was impossible; but in their truth to the period they professed to represent, and real faithfulness to its characteristics—a belief which only shows how little educated, how simple and unacquainted with the history of the ages, and the difference between one and another, was the boy poet. The masquerade, transparent as it is to us, was reality to himself.

In 1768, when Chatterton was sixteen, after he had been a whole year in Mr. Lambert's office, the new bridge, over which, when half built, Catcott had ridden with so much silly braggadocio, was formally opened; and on occasion of this ceremony, Chatterton tried his hand at a mystification of the general public. He sent an extract to a local paper out of Rowley's wonderful stories, in which, it appeared, every kind of illustration appropriate to every variety of experience might be found. "The following description of the Mayor's first passing over the Old Bridge, taken from an old MS., may not at this time be unacceptable to the generality of your readers," he says, signing himself "Dunelmus Bristoliensis," to "Farley's Bristol Journal;" and the accompanying extract was given with all formality as it is quoted. The reader will perceive how, under the strange and over-elaborate marks of antiquity, are forms of expression audaciously modern, and a general air of to-day, by which no true antiquary could ever be deceived:—

"On Fridae was the Time fixed for passing the newe Brydge: Aboute the Time of the Tollynge the tenth Clock, Master Greggorie Daltenye, mounted on a Fergreyne Horse, enformed Master Maior all Thyngs were prepared; when two Beadils want fyrst streying fresh stre, next came a Manne dressed up as follows: Hose of Goatekyn, erinepart outwards, Doublet and Waystcoat also, over which a white Robe without sleeves, much like an albe, but not so longe, reaching but to his Lends; a girdle of Azure over his left shoulder, rechde also to his Lends on the Ryght, and doubled back to his Left, bucklying with a Gouldin Buckel, dangled to his

knee; thereby representing a Saxon Elder-man. In his hande he bare a shield, the Maystris of Gille a Brogton, who painteded the same, representyng Saincte Warburgh cros-synge the Ford. Then a mickle strong Manne, in armour, carried a huge anlace; after whom came six claryons and Minstrels, who sang the Song of Saincte Warburgh; then came Master Maior, mounted on a white Horse, dight with sable Trapping, wrought about by the Nunnes of Saincte Kenna with gould and silver. Next followed the 'Eldermen and Cittie Broders' all fitly mounted and caparisoned; and after them a procession of priests and friars, also singing St. Warburgh's Song.

"In thilk Manner reechyng the Brydge, the Manne with the anlace stode on the fyrst Top of a Mound, yreed in the midst of the Bridge; then want up the Manne with the sheelde, after him the Minstrels and Clarions; and then the Preestes and Freeres, all in white Albs, making a most goodlie shewe; the Maior and Eldermen standyng round, theie sang, with the sound of Clarions, the Song of Saincte Baldwyn: which beyng done, the Manne on the Top threwe with greet Myght his anlace into the see, and the Clarions sounded an aurtiant charge and Forloyn: then theie sang againe the Song of Saincte Warburgh, and proceeded up Chryst's Hill to the Cross, where a Latin Sermon was preached by Ralph de Blundeville. And with sound of Clarion theie agayne went to the Brydge, and there dined; apendyng the rest of the Daie in Sportes and Plaies: the Freeres of Saincte Augustine doeyng the Plaie of the Knyghtes of Bristowe, making a greet Fire at Night on Kynwulph Hyll."

This bit of supposed antiquity caused a considerable sensation in the town. It had been brought to the printing-office by a stranger, and it was only on his return with another communication of a similar character that his identity was discovered. Catcott, to whom the narrative was doubly interesting on account of his recent exploit, had made eager inquiries about the source from which it came, and was no doubt confirmed in his belief in Rowley by finding that this wonderful piece of narrative proceeded from the same inexhaustible stores. The boy appears to have been rather roughly handled by the printing-house people. "His age and appearance altogether precluded the idea of his being the author;" and when peremptorily questioned as to where he got it, he drew back within himself, and became as obstinate as his questioners were surly. It was only when they softened, and begged for the

information which he alone could afford, that he yielded. He gave the same reply that he had already done to Catcott and Burgum—that this was one of the many MSS. which his father had taken from the muniment-room at Redcliffe Church. At the very same time, however, he showed to a certain John Rudhall, one of his comrades, with boyish imprudence, the process by which he prepared his parchments and imitated the ancient writing. No doubt the publication of this scrap of history gave fresh energy to his dealings with Barrett, whom he served in the strangest way, humoring his longing for original documents, and inventing, as he went along, with a miraculous appropriateness to the need of the moment, which one would think must have excited some suspicion in the mind of the historian. Authorities do not generally drop down from heaven upon a writer exactly when he wants them in this lavish way. But no doubt seems to have crossed the mind of the antiquary. "No one surely ever had such good fortune as myself," he cried many years after ecstatically, "in procuring MSS. and ancient deeds to help me in investigating the history and antiquities of this city." It does not seem even to have occurred to the self-absorbed compiler that there was anything remarkable in the fact of the lad Chatterton being able to decipher and identify such documents, even had his possession of them been fully explained. He took everything for granted with the most admirable imbecility, and made the fullest use of them, as will be seen from the following account of his work, which we quote from Dr. Wilson:—

"If the reader turn from the biographer's pages to those of the historian and antiquary of Bristol, for information about William Canynge the elder, merchant and mayor of Bristol in the age of Chaucer, when Edward III. and his grandson Richard reigned; or for the facts concerning the younger Canynges of the times of the Roses; of Sir Symon de Byrtoune, Sir Baldwin Fulford, or even of the good priest Rowley—he suddenly finds himself involved in the most ludicrous perplexities. Mr. Barrett was, in earlier days, an undoubted believer in Rowley, and continued to welcome with unquestioning credulity the apt discoveries which were ever rewarding the researches of Chatterton among the old parchments purloined by his father

from Redcliffe Church. Did the historian attempt to follow up his first chapter of British and Roman Bristol, with its Roman camps, roads, and coins, by a second, treating in like manner of Saxon and Norman Bristol, his meagre data are forthwith augmented by the discovery of an account by Turgot, a Saxon ecclesiastic, who lived not long after the time assigned by Camden for the origin of the city, 'Of auncient coynes found at and near Bristowe, with the hystorie of the fyrst coynynge, by the Saxones, done from the Saxon ynto Englyshe, by T. Rowlie.' From the same veracious pen follows an account of 'Mays-ter Canynge, hys cabinet of auntyaunte monuments;' the same being a wondrous library and antiquarian museum of Bristol in the days of Henry VI. Did Leland fail the historian, painfully assiduous in researches into early ecclesiastical foundations: an old MS. of Rowley fortunately turns up, with valuable notes on St. Baldwyn's Chapelle in Baldwyn's Street; the Chapelle of St. Mary Magdalen, in the time of Earl Goodwyne; Seyncte Austin's Chapelle, with its 'aunciauntie and nice carvellynge;' and other equally curious and apocryphal edifices.

"So it is throughout the volume."

It seems to have been only when he had thus fully convinced all the authorities round him—and of course such men as the Catcotts and Barretts were, till he saw through them, great men to the attorney's apprentice, the charity-boy and descendant of gravediggers—that Chatterton began to dream of fame and fortune. No doubt it must have been every way bad for the boy to fathom so speedily, and find out the narrowness and meanness of the only people he had to look up to. When he perceived with his clear eyes how utterly deceivable they were and yet how selfish, taking from him what they wanted without any attempt to help him, or the slightest appreciation of his powers, it is not wonderful if the natural impulse of arrogant youth to despise its pottering commonplace seniors, grew stronger and more bitter within him. He took these small luminaries as a type of the critics and teachers of the world—as indeed, to a certain extent, they were—and trimmed his pinions to a loftier flight. As he had taken in the wisacres at home, no doubt he could take in the others outside the little world of Bristol, and make a stepping-stone of them, and dash forth upon a universe where surely—grand final hope which represents some faith still in an ideal human nature—somebody was to

be found who would know what all those hieroglyphics meant, and decipher the strange language and hail the new poet. There is the strangest mixture of simplicity and cunning, belief in the credulity of others, and pathetic credulity on his own part, in Chatterton's first attempt upon the larger world. He wrote to Dodsley the publisher, offering "several ancient poems, and an interlude, perhaps the oldest dramatic work extant, wrote by one Rowley, a priest in Bristol, who lived in the reigns of Henry VI. and Edward IV." Receiving no answer to this letter, after an interval of two months he wrote again, a pitiful epistle, giving an account of the tragedy of "Ella," and asking for "one guinea to enable him to procure permission to copy it." Poor boy! The extreme poverty to which one guinea is a matter of importance has something pathetic in it, which drops a merciful veil over those little meannesses, by none more bitterly felt than by those compelled to do them, which need produces. Whether he received any answer at all to this painful application there is no way of knowing. But shortly after, he made another and more dignified effort. Horace Walpole, who is so well known to us all—a man of much greater calibre than the Catcotts and Barretts, yet who probably in the same circumstances would have been as easily deceived, and as little conscious of Chatterton's real qualities as they—was, at the distance from which alone the Bristol boy could regard such a potentate, as a god among men. Distance, alas! has an immense deal to do with many reputations. A vague dilated idea of the noble gentleman, who, though already in the highest place which fortune could bestow, yet condescended to write, to take an interest in art, and to bestow a glorious patronage upon its professors, was the young poet's conception of the *dilettante* of Strawberry Hill. He was a patron worth having—a man whose notice would open an entire world of honor and gladness to the ardent boy. He too, even, had sinned, if it could be called sin, in the same splendid way. Chatterton was Rowley; but was not Walpole the Baron of Otranto, able to understand all these quaint delights of antiquity, half simulated, half real—to see through the dis-

guise, and recognize the real poet? Such, no doubt, was the poor lad's dream—and such a dream has aroused, one time or another, every poetical youthful imagination. A sudden exhilaration seems to have filled his mind when this project dawned upon him. He could not, would not, doubt its success. "He would often speak in great raptures of the undoubted success of his plan for future life," says his sister. "His ambition increased daily. His spirits were rather uneven, sometimes so gloomed that for days together he would say but very little, and apparently by constraint; at other times exceedingly cheerful. When in spirits he would enjoy his rising fame: confident of advancement, he would promise my mother and me that we should be partakers of his success."

Strangely enough, however, this pure impulse to seek a higher sphere and a patron more likely to comprehend him, was carried out by another of those amazing fictions to which his mind had grown familiar. He approached Walpole not as a young poet seeking to make himself known, nor even as the discoverer of a poet, but with a long, quaint, very absurd, and, to our eyes, very transparent account of a multitude of mediæval painters, immortalized by Rowley, which might be used (he suggests) in a future edition of Walpole's "Anecdotes of Painting"! Nothing more daring than this sudden creation of a Bristol school of painters, as numerous as the Umbrian or Venetian, and to all appearance quite as distinguished, could be conceived; and it shows the wonderful simplicity of the poor boy, and his unconsciousness of the fact that history did exist independent of Rowley, and that his wonderful statement could be put to its test. In the note which accompanied this extraordinary production he introduced himself to Walpole as a brother *dilettante*. "Being versed a little in antiquities, I have met with several curious MSS.," he says. No doubt this mode of approaching the great man seemed to the youth the perfection of craft and prudence; and when he received in return a courtly letter, complimenting him upon his learning, his urbanity, and politeness, and couched in the terms due from one stately student to another, it is not wonderful if he felt his hopes almost realized.

The poor boy wrote again, not abandoning his grandiloquent pretences as to Rowley, but bursting into a little personal history as well. He told his splendid correspondent that he was "the son of a poor widow who supported him with great difficulty; that he was still an apprentice to an attorney, but had a taste or turn for more elegant studies; and hinted a wish," says Walpole, who is our only authority as to the words of this letter, "that I would assist him with my interest in emerging out of so dull a profession by procuring him some place in which he could pursue his natural bent." With this letter Chatterton enclosed no more nonsense about painters, but several of the Rowley poems, and awaited the result with, it is too easy to imagine, a beating heart.

The result was such as might have been anticipated. The courteous reception of a doubtful antiquity from a brother virtuoso, which involved nothing more than civility and a learned correspondence, was one thing; but to take bodily upon one's shoulders the charge of an uneducated and penniless lad, with a fardel of very suspicious MSS., was a totally different matter. Our friend Horace was taken much aback. He had no way of knowing that it was a matter of life and death to his correspondent; and even had he done so, it is doubtful whether he would have thought the despair of a Bristol apprentice anything like so important as his own comfort and equanimity. But he was still courteous, even kind in his way. He submitted the poems to Gray and Mason, whose opinion against their genuineness was stronger than his own, and he wrote very civilly to the young unfortunate. "I deceived him," he says, "about my being a person of interest, and urged him that in duty and gratitude to his mother, who had straitened herself to breed him up to a profession, he ought to labor in it, that in her old age he might absolve the filial debt. I told him that when he should have made a fortune, he might unbend himself with the studies consonant to his inclination." Pitiless words! yet not meant badly by the fine gentleman, to whom, no doubt, it appeared quite possible that a budding attorney might one day make some kind of dirty little fortune. Poor Chatterton, stinging and

tingling in every vein, yet keeping his temper with a miraculous effort, replied in defence of his MSS., upon which his correspondent had thrown a doubt. "I am not able to dispute with a person of your character," cries the poor boy, who, even in this bitter moment, cannot refrain from some circumstantial fibbing about his Rowley, whose productions he copied, he says, "from a transcript in the hands of a gentleman who is assured of their authenticity." But he concludes with a burst of indignant but not undignified feeling. "Though I am but sixteen years of age, I have lived long enough to see that poverty attends literature. I am obliged to you, sir, for your advice, and will go a little beyond it, by destroying all my useless lumber of literature, and never using my pen again but in the law."

Poor hot-headed disappointed boy! no doubt there were bitter tears in his eyes as he wrote these words, so full of indignant meaning, so real in feeling, and yet so impossible. Twice after he had to apply to Walpole for the return of his MSS., Horace having gone to Paris to enjoy himself for six weeks in the mean time, and forgotten all about his petitioner. They were finally returned without a word to apologize for the delay. And thus ended poor Chatterton's dream—the only project with any real foundation to it which had yet entered his fertile brain.

But yet it would be cruel to impute any serious blame to Walpole. Advice is an unpalatable substitute for warm support and championship; but there was no reason why he should accept the task of setting up this boy in the world, and making a career for him. No doubt he was sorry afterwards if it ever occurred to him that his repulse had anything to do with Chatterton's fate. But we cannot believe that it had actually anything to do with it. The boy's energies were quite fresh and unbroken, and the sting of a great disappointment is quite as often a spur as a discouraging blow. Probably the cutting off of his hopes had something to do with the sharp and angry satires produced during his last year in Bristol, and which seem to have been chiefly directed against his friends. One of these, Mr. Catcott the pewterer, received his casti-

gation in such a Christian spirit, or rather with such unexampled vanity, as to annotate and preserve it, evidently with an idea that fame is fame, and that to be celebrated in satiric verse is better than not to be celebrated at all. But his brother the clergyman, with whom Chatterton had become intimate, received it in quite another fashion, and broke off all intercourse with the rash boy—a fact which would seem to have startled him—the first punishment of his unsparing ridicule. By this time he seems to have become very well known in Bristol. He had a bowing acquaintance, his sister tells us, with almost all the young men; and his strange ways, his fits of silence, his abstruse occupations, and no doubt in such an age his unusual temperance, made him an object of some wonder to the common crowd. He was like nobody else in that little world. He was known to be already a man of letters, contributing to the newspapers and magazines; and that of itself was foundation enough upon which to attribute to him all manner of oddity. Wondering looks followed as he went on his dreamy way from Mr. Lambert's house to his office—from the office to his mother's humble little dwelling. That was the utmost extent of his locomotion on week-days; but on Sunday he made expeditions into the country, and would bring home drawings of village churches which had taken his fancy; or beguiling a half-reluctant companion to the river-side, would throw himself down on the grass and read to him, probably to the great bewilderment of his faculties, one of Rowley's poems; or in a gayer mood would join the gay crowd in the public promenade, where the girls went to show their finery. He had many friends among those "girls," the pretty blossoms of their generation, who perhaps were less hard upon him than wiser folk—and wrote verses to them, and promised to write them letters when he went away; but these friendships were such that he could send his messages to them through his mother—a harmless mode of correspondence.

These are the higher-lights of Chatterton's life. But all this time it must be remembered that the lad who had been permitted to discuss theology with

the clerical Catecott, and give information to the antiquarian Barrett—who had corresponded with Walpole, and seen himself in print in a London magazine—and who had formed a thousand dreams more splendid than any reality—was still the bedfellow of Mr. Lambert's footboy, eating his spare meals in Mr. Lambert's kitchen with the maids, and with no place of refuge from these companions except in the office, where sometimes Mr. Lambert himself would appear furious, seizing upon his cherished labors, and scattering the floor with the fragments of his lost poetry. He was boarded and clothed by this harsh employer, but had not a penny even to provide himself with paper, except the chance half-crowns which Barrett or Catecott bestowed upon him for his MSS. If he was "moody and uneven in spirits," what wonder? With such associates round him continually, it would have been strange if he had not been subject to "fits of absence." And as he grew and developed, the yoke became more and more irksome. He was apprenticed to Mr. Lambert for seven years, only two of which were gone, and to get free was the object of his constant longing. He would run away, he said, in despair, in the evening hours which he spent at home, and which were often spent, no doubt, in those anxious pleadings with him for patience on the part of the troubled women, and wild complaints on his side, which are unfortunately so common. One knows the very arguments the poor mother would use, praying her impatient boy, with tears in her eyes, to put up with it a little longer. What was to become of him?—what was to become of them all if he threw away this only certain sustenance? There are few of us who have not seen such scenes; but not many discontented boys nowadays have such foundation as had poor Chatterton, thus beset on every side, and shut out from any possible consolation or even privacy in his life.

It is hard to say whether the accident which cut short his bondage was the result of careful arrangement on his part, or if it was simply chance; probably a little of both. There is a mixture of levity and reality in the strange document called his will, which seems to

bring before us too clearly for any artifice the workings of the strange double mind—one all school-boy insolence, the other deepening into a pathetic sense of all the mysteries of life—which inspired the lad. This curious production begins with satirical addresses to his friends Burgum and Catcott in verse, and breaking off abruptly with a reference to the usual burial-place of suicides, continues thus:—

"This is the last Will and Testament of me, Thomas Chatterton, of the City of Bristol; being sound in body, or it is the fault of my last surgeon. The soundness of my mind the Coroner and Jury are to be judges of, desiring them to take notice, that the most perfect masters of human nature in Bristol distinguish me by the title of the Mad Genius; therefore if I do a mad action, it is conformable to every action of my life, which all savored of insanity.

"Item, If after my death, which will happen to-morrow night before eight o'clock, being the Feast of the Resurrection, the Coroner and Jury bring it in lunacy, I will and direct that Paul Farr, Esq., and Mr. John Flower, at their joint expense, cause my body to be interred in the tomb of my fathers, and raise the monument over my body to the height of four feet five inches, placing the present flat stone on the top, and adding six tablets.

"On the *first*, to be engraved in Old English characters—

"Vous qui par ici passez
Pur l'ame Guateroine Chatterton priez;
Le Cors di oi ici gist,
L'ame receyve Thu Crist.—MCCX.

"On the *second* tablet, in Old English characters—

"Orate pro animabus Alanus Chatterton, et Alicia Uxoris ejus, qui quidem Alanus obiit X. die mensis Novemb. MCCCXV., quorum animabus propinetur Deus. Amen.*

"On the *third* tablet, in Roman characters—

"Sacred to the Memory of

THOMAS CHATTERTON,

Subchaunter of the Cathedral of this city, whose ancestors were residents of St. Mary Redcliffe since the year 1140. He died the 7th of August 1752.

"On the *fourth* tablet, in Roman characters—

"To the Memory of
THOMAS CHATTERTON.

Reader, judge not: if thou art a Christian, believe that he shall be judged by a superior Power; to that Power alone is he now answerable."

* The French and Latin are given as Chatterton wrote them.

This wonderful jumble of the imaginary and true, fictitious ancestors and but too real father and son, is not more remarkable than the sudden drop in a moment from the false levity of all that precedes it to the touching and pathetic words which have since been inscribed on Chatterton's monument—a momentary gleam of the better and truer soul. The will then relapses into satire, as the boy bequeaths his "vigor and fire of youth," his humility, his modesty, his spirit and disinterestedness, his powers of utterance and his free-thinking, to various of his friends, patrons, and enemies in Bristol. Then he pauses, with once more a recollection of something better, to make a kind of apology to the Catcotts for his sins against them. "I have an unlucky way of railing, and when the strong fit of satire is upon me I spare neither friend nor foe," says the poor fool of genius, divided between real regret for his cruelties, and a certain sense that it is a fine thing to have talents and impulses which are too strong to be resisted. "I leave all my debts," he concludes, "the whole not five pounds, to the payment of the generous Chamber of Bristol. . . . I leave my mother and sister to the protection of my friends, if I have any. Executed in the presence of Omniscience, the 14th of April, 1770." This wonderful melange of flippancy and solemnity is indorsed as follows: "All this wrote between eleven and two o'clock, Saturday, in the utmost distress of mind." Poor boy! wearing his charlatan habit with such a tragic truthfulness! He meant it every word, and yet he meant it not. He was playing with that cold-gleaming remorseless weapon of death; touching the axe with his finger, jesting over it, shooting sharp shafts under cover of its presence, and laughing at the twinges of his victims; yet wondering, wondering all the time when the moment came how it would feel.

He left this composition, written, as most of his productions were, in a copy-book, upon his desk; and by chance or by design it fell into Mr. Lambert's hands. The attorney had been already scared by another trick of the same kind, and was too much alarmed any longer to run the risk of finding a dead drudge in his office some day instead of a living one. His alarm was so great that we are told the

indentures were immediately cancelled, and the dangerous apprentice dismissed. He was as glad to be rid of Lambert as Lambert must have been to get rid of him; and went back to his mother, carrying trouble and consternation into the dressmaker's humble household, but full of confidence himself. "Would you have me stay here and starve?" he asked, when the weeping women tried to dissuade him from his project of going to London; and then he chattered to them of the great future that was coming, and of all the grandeur he would surround them with. He talked away their fears, or at least talked them silent—no rare occurrence; for here again is no exceptional feature in a poet's life, but one of the perennial chances of humanity—the confident boy, fearing nothing, eager to dash into the fight and dare all its perils—the older, sadder souls that have themselves been wounded in the battle, weeping, doubting, deprecating, and yet not without a feeling in their hearts that for him an exception may be made which goes against all experience, and that such bright hope and courage and confidence cannot altogether fail.

And in this moment of necessity his friends stepped in to help. They made up a purse for him to pay his expenses to London and gave him a start in his new career. The amount is not known, and probably was not very great; but it was enough to send the boy away in the highest spirits, in the basket and afterwards on the top of the coach, where he "rid easy," as he writes to his mother. He wrote the first morning after his arrival a long letter with a complete itinerary of his journey. He had got into London at five in the evening on the 25th of April, and had at once proceeded to visit the booksellers with whom he had already some kind of connection, through his contributions to the *Town and Country* and other magazines. He had, he says, "great encouragement from them all; all approved of my design." He had seen various relations in London, and had received a kindly welcome; and altogether was in high hope and excitement, feeling himself on the verge of a brilliant fate.

Chatterton established himself in lodgings in Shoreditch—a curious locality,

considering all the fine company which he immediately declared himself to be keeping. So far as personal comfort went he would not seem to have much improved by the change, for again we find he shared his room with a nephew of his landlady's, a young plasterer, whose peace must have been strangely disturbed by his new bedfellow. "He used to sit up almost all night in writing and reading," says the plasterer's sister; "and her brother said he was afraid to lie with him, for to be sure he was a spirit and never slept; for he never came to bed till it was morning, and then, for what he saw, never closed his eyes." And, however late he had been, he invariably got up when the young workman did, between five and six. The same feverish restlessness seems to have distinguished him through all the remainder of his brief life. His letters are like the utterance of a man in a breathless hurry. He is writing this and that—he is sought for here and there. Wilkes is anxious to see him; Beckford the mayor is going to make his fortune. He knows all the wits at the coffee-houses; he meant to have called on the Duke of Bedford, but could not, as he was ill. All these startling intimations of exalted fortune hurry from his pen as if he had no time to take breath. And he must indeed, during the first month he spent in London, have been busy enough, though not to much profit. He had papers in the "*Middlesex Journal*," the "*Freeholders' Magazine*," the "*Town and Country Magazine*," the "*Annual Register*," and even the "*Gospel Magazine*" received contributions from him, "for a whim" as he tells the anxious watchers at home. "I get four guineas a month by one magazine," he wrote a fortnight after his arrival, "and shall engage to write a *History of England* and other pieces, which will more than double that sum. Occasional essays for the daily papers will more than support me. What a glorious prospect!" He promises his sister "two silks during the summer," she has only to choose the colors; and does manage somehow or other to send his mother a box containing a half-dozen cups and saucers, two fans, and some British herb snuff for his grandmother—a touching proof of the boy's tender thought of his own

people, the humble, simple, anxious family who were rejoicing with trembling in the little Bristol house.

Amid all this big talk, however, he allows himself to complain, in a letter to his sister, that the political essays or letters which he had begun to write did not pay. It was the age of Junius, and the ambitious boy had set himself up as a kind of rival to Junius under the title of Decimus. But he found that "essays on the patriotic side fetch no more than what the copy is sold for," and that on the other side they fetch nothing at all. "You must pay to have them printed," he says with curious shrewdness, "but then you seldom lose by it." "If money flowed as fast on me as honors," he adds, "I would give you a portion of £5,000." There does not seem to have been any foundation for all these boasts; yet the brag which was made to keep up the spirits of his mother and sister, and conceal from them his privations, surely deserves to be called at least a pious fraud, and must not be too sharply criticised. He kept up the farce almost to the end, describing himself on the 20th July, only a month before his death, as having "a universal acquaintance: my company is courted everywhere; and could I humble myself to go into a computer, could have had twenty places before now; but I must be among the great: State matters suit me better than commercial," says the boy, in what must have been the half-delirious self-assertion of a spirit approaching the final margin of despair. A little later he tries to obtain a recommendation from Mr. Barrett for a situation as surgeon in a ship going to Africa, a wonderful practical contradiction to his boasts which must have confused the minds of his friends. Barrett refused to give it, as was natural. And then the darkness seems to have closed in around the unhappy lad. The last visible sign we have of him in this world is a letter to Catcott, mostly about the architecture of Redcliffe Church, and the improvement of the Bristol streets. "Heaven send you the comforts of Christianity; I request them not, for I am no Christian," he says. These are almost his last words out of the gathering shadows. They are dated the 12th August, but twelve days before his death; but not a word is in them to lead to the

inference that the writer's heart and hopes were failing, that he was nearly at the end of all his devices, beginning to starve among strangers. Shortly before this he had changed his lodging, for no reason that is told to us, but probably that he might hide his growing poverty, the beginning of utter want and destitution, from people who knew him. A relative of his own lived in the house in Shoreditch, and must have found out his privations—and the poor proud boy preferred to hide his misery and suffer alone.

There is little to be learned about his last days. He had stolen away like a wounded animal to hide what he had to bear. For the first time in his life he had his poor room to himself. It was in the dusky neighborhood of Holborn, in the midst of the fullest din of London, and nobody who knew him was near to win the unhappy one back to hope. He had written night and day, using all his young strong faculties to the utmost, dispensing with sleep and food and all the ordinary supports of mortal men; and this, no doubt, had undermined his health, so that despair had so much the easier mastery of him when, after valiantly fighting the wolf at the door for four long months, it at last broke in. The publishers, according to his own calculation, were owing him eleven pounds—enough to give so frugal a being bread for some time to come; but he could not get the money that was owing to him, and that bitter doubt and distrust of man which lay in the depths of his nature broke forth in full force, adding a double pang to his other sufferings. With that horrible doubt and sense of wrong came the pride which is their natural companion. Humble overtures of kindness made by the humble people about him, who saw that the boy was starving, were rejected with scorn. Once only the pretence of an oyster-supper tempted him to eat in the house of a kind apothecary in his new neighborhood. This, it is supposed, was his last meal. When his landlady begged him to share her dinner with her in the last awful days, the poor boy, mad with hunger and despair, resented the Christian charity. He kept himself all alone "a prisoner in his room" with such thoughts as only the eye of God could see. Between the unhappy child (not eighteen)

in his despair, and those tenderest, most pitiful, all-comprehending eyes of the Father in heaven, it is not fit that any man should interpose his vain judgment. On the 24th of August the boy's fortitude or his mind gave way. It is possible that he had the poison in readiness for some such emergency, or else that he staggered forth, all weak and ghastly, to get it when nature could bear no more. It was arsenic, mixed with water, we are told, which was the means of death he chose. Next morning, when the frightened people of the house broke open his door, he lay among a thousand fragments of the papers he had torn up wildly before dying, in all his young beauty, the bright eyes dim, the strong limbs powerless, like a young oak-tree felled, while all its strength was yet to come. This was the end of his struggles, his indomitable courage, his wild tender boastings of good fortune which had never been. The sleepless soul had perished in its pride. The great career which ought to have been was annulled forever.

We have not attempted any criticism of Dr. Wilson's careful and sympathetic study of this short sad life. The ground has been often gone over, but never with more painstaking labor or truer feeling; and this book is not burdened, as are almost all others on the same subject, with elaborate discussions about the comparative wickedness of literary forgeries, or the forgotten arguments of the Rowley controversy. Dr. Wilson's interest is with his hero—to whom he has rendered the calm yet generous justice which is scarcely ever attained by contemporaries, or even by critics of the generation im-

mediately following—and not with mere literary discussions or *dilettante* arguments.

We have refrained, too, from the Rowley controversy, and also from the Rowley poems, as things of inferior and temporary moment in comparison with the story of their author. The first is dead, as all such absurd discussions must come to be as soon as remorseless Time has laid his hand upon them. The poems, if not dead, are sadly buried under the rubbish of artificial antiquity with which it pleased their author to encumber them. Underneath are to be found rich tints of beauty and power, the scatterings of a splendid and prodigal genius; but we have no space to enter into criticism. We are told, in all Chatterton's earlier memoirs, with the unfailing set moral of the eighteenth century, that had he but waited a while all would have been well with him. Did not Dr. Fry of St. John's College, Cambridge, go to Bristol very shortly after to investigate into the Rowley poems and their discoverer? "Poor Chatterton! he might have grown to be a perfect man, and become a happy poet and a Christian philosopher," says one of his anonymous biographers. But, after all, there is nothing certain in Dr. Fry nor in the justice of the world; and the only conclusion we have the heart to put to this saddest chapter of literary history, is that which he himself appointed to be placed over his grave: "Reader, judge not. If thou art a Christian, believe that he shall be judged by a superior Power: to that Power alone is he now answerable." There is nothing more to be said.

Macmillan's Magazine.

BLANCHE TRÉGUIER.

THE first time I saw her she was cleaning a window. She was dressed in black, and had a little white cap tied under her chin. The frills of it stood round her face like a halo, and underneath the frills peeped some stray locks of hair; hair that was neither red nor sandy, nor what we call golden, but the color of the silk wound from the pale yellow cocoons that one sees sometimes in the silk

markets in Italy. She came and went, answering somebody who was calling from below, while I, who had just arrived at St. Aignan by the night diligence, sat disconsolate on top of my boxes in the red-tiled *salon* on Madame Landerneau's first-floor, in No. 49, Rue du Chat qui file, waiting till Madame got my room ready, and brought me some hot coffee. "*Tiens!*" she had

said coolly, when remonstrated with for not having been prepared to receive me when I had written to warn her; "*tiens!*" Mademoiselle did write, it is true, and I don't deny it. But I said to myself, I dare say she will change her mind now the weather has turned chilly. You will not have long to wait, however, Mademoiselle; your rooms are perfectly clean, only a little dusty."

I sat still, looking, I dare say, very tired and cross, staring absently across from my open window on one side of the court to the window that was being cleaned by the girl with the blond hair on the other side of the court. Presently she shot a glance across to me with a pair of beautiful, mischievous, unfathomable brown eyes; a glance that took in all the situation, as they say, of the *salon* of No. 49 in an instant: thus—middle-aged lady, new lodger, plenty of boxes; wanting bath, bed, breakfast, everything; Madame Landerneau behindhand as usual, puffing and blowing, screaming at Marthe in the kitchen, looking high and low for her keys, which are in her outside pocket, banging everything about, and wondering why people will come when she has made up her mind not to expect them. "Yes, yes; I know all about it," said the brown eyes, as plainly as possible. Then with a parting flick of her blue duster, a parting glance up at the six window-panes shining without a speck in the morning sun, and a look of mingled pity and amusement across the court to me, she shut the window, and vanished.

Before the end of the week I had persuaded Madame Landerneau to dust my rooms thoroughly. I had placed rugs here and there on the red-tiled floor, and scarlet hangings round the chimney-piece to keep my fire warm. I had silenced two of the three antiquated clocks of which my landlady was so proud, and I had made her understand that whenever I went upon any of the short excursions on account of which I had made St. Aignan my head-quarters, she was to expect me back at the time I fixed for my return, and not have any opinion of her own on the point.

Sitting in the dusk after my solitary dinner, on my return from one of these excursions, I could see into my neighbor's room across the court. Her lamp

was lit, and she was ironing busily. A row of ugly, old woman's night-caps hung before the fire, crisp and steaming. Three little white embroidered caps lay on the faded red sofa by the fireside. She had just finished ironing a fourth, and was in the act of trying it on, when I looked up. Thought I, "Some coquettish little bourgeoisie, no doubt. She will stick pink bows into her cap, and be very fine at High Mass to-morrow."

On Sunday afternoon, as I looked out of window debating whether it were best to take umbrella or parasol, I saw two ladies descend a staircase that belonged to a separate block of buildings on the other side of the court. They had Prayer-books in their hands, and wore bonnets. They crossed the court and entered Rue du Chat qui file by the long narrow passage belonging to Madame Landerneau's house. I did not see the face of the elder lady: the face of the younger was that of my ironing woman, my window-cleaner, the bourgeoisie with the brown eyes and the blond hair. But the bonnet on her head this afternoon told me in language not to be mistaken that she was no bourgeoisie, but a daughter of a good house, as they say at St. Aignan. I believe that at that time, had a bourgeoisie ventured into the street with a bonnet on, her neighbors would have mobbed her, and torn her head-dress into shreds. St. Aignan has the railway now, and gas, and flagged pavements, and many other innovations, and the bourgeoisies have left off observing their old sumptuary laws; indeed, I believe all the young ones wear bonnets and kid gloves on Sundays; but it was far otherwise at the time of which I write.

One winter's day, when the snow fell thick, and the white glare from the roofs filled and chilled my sitting-room beyond endurance in spite of my scarlet curtains and my log fire, a timid, uncertain knock came to my outer door. Madame Landerneau and I had had a "difference" that morning about answering the door. She was paid for attendance, which she supposed to include getting my coffee of a morning, making my bed in time for me to get into at night, and stopping to have a chat whenever she brought me a letter or a news-

paper. She had no objection to answer the door either, if she were in the way. If not—if she happened to be up-stairs in her apple-room, or down-stairs among her wine-casks, or nodding or gossiping with a neighbor out of window—why, then any reasonable lodger would get up and answer the door herself. I had been roused that morning from a delicious sleep and a dream about a chime of bells, by a pedler who had entered my room after knocking and ringing in vain at the outer door, and who insisted on selling me lithographs, and soap, and hair-pins, and brushes. After that it was necessary to come to an understanding with Madame Landerneau. "Oh, of course, since Mademoiselle insists upon it," she said, and as she went away I heard her muttering to herself and grunting, "Ugh! as obstinate as a Bretonne!" Madame Landerneau was a Normandy woman, and believed no good thing could come out of Brittany.

I sat still, wondering whether the door would be opened or not. After the third appeal to the bell I owned that Madame Landerneau had proved the stronger, and got up meekly to open the door myself. I was rewarded by seeing a princess in disguise—the girl with the brown eyes and the blond hair, hair that looked as if all the hairdressers in St. Aignan had been spending the morning over it. She stood and courtesied low, with mingled grace and pride, a princess if ever there was one. I courtesied too, and bid her enter.

"Mademoiselle," she said, as she dropped into the seat of honor, my biggest arm-chair, "a letter was brought to us this morning which was directed to me—or rather to a person with a name much resembling mine. The postman seeing no street marked, concluded it must be for me. I am Blanche Tréguier, and I did not know there was another person of the same name in St. Aignan or out of it. We did not know the handwriting, and, hearing there was a strange lady lodging in this house, my mother thought I had better show her the letter, as she might be its owner."

The letter was mine; my correspondent, a woman who never remembers street or number, and keeps no address-book.

It is a wonder how any of her letters

get to their owners. It was a wonder I got mine, then.

"My name is Blanche Tregaye," I said, "and I, too, did not know that there was another of the name in St. Aignan or out of it. I am Cornish, Mademoiselle; you should be Bretonne, I think."

"Yes, I am Bretonne," said the girl, with proud humility. "But—I have very few relations."

Was she afraid I was going to claim relationship? Had she been Cornish, I should certainly have called her "cousin." But I had not even Cornish cousins. I was without a relation in the world. I told her so.

"That must be rather dull," she said, gazing away I know not where with her unfathomable brown eyes. "I should not like that. On the mother's side I have a few relations, and—I have Mamma."

"If it is agreeable to Madame Tréguier, I will do myself the honor to make her acquaintance," I said, feeling curious to know what the mother of my princess in disguise was like.

Blanche Tréguier answered that her mother would be enchanted; but there was a want of alacrity in the tone in which she said the words which warned me it was possible Madame Tréguier would be anything but enchanted.

Madame Tréguier, my landlady informed me, was a widow lady who kept the *bureau de tabac*—tobacconist's shop,—tobacco being a Government monopoly, the places in which it is sold are not styled shops, but *bureaux*—in Rue de l'Épéron. She was as poor as a rat, but would take nothing from anybody, friends or relations; she preferred keeping her bureau and being independent, like a bourgeoisie. The girl was well enough, she always had a smile for you as she passed. But the mother was a regular Bretonne, proud down to the end of her skinny fingers.

I found Madame Tréguier, indeed, very proud. Had it not been that Blanche, with all her pride, had a certain winsome way about her, I think I should have not repeated my visit. I believe Madame Tréguier considered me a doubtful character. I was a woman who lived alone, who had arrived at St. Aignan by the diligence; with plenty of boxes, it was true, but no maid. She did not know

that I had only travelled in the diligence because I wanted to know what it was like, that I never intended to trust myself to it a second time, and that I had no maid because I had broken loose from my English Sarah after bearing her tyranny for fifteen years. Everybody was getting emancipated, and why not I?

But I found the way to Madame Tréguier's heart at last. One day I put on a wonderful cashmere shawl sixty years old, and paid Madame a visit in her bureau, where she sat in a cloud of smoke. She rose up quite flurried and distressed.

"You here, Mademoiselle? This is no place for you. The duties of my position keep me here, but I have a drawing-room for my friends up-stairs. You will find Blanche there."

But I sat down resolutely in spite of the horrible smoke, saying that I was in the mood for an hour's chat with her, and had sought her where I knew she was to be found. That hour's sitting, and my ancient shawl, won Madame Tréguier's poor proud heart. "I like those old patterns so much better than the modern ones," said the poor woman, taking up one end of the faded garment. "This reminds me of the shawl my grandmother—she was a Plouergast—had given to her on her wedding-day. She often told me about it."

I said I loved old things, and would like to see it. "Alas, I have it not," she said, with a blush and a sigh. Some time afterwards I learnt that the shawl, along with other heirlooms of still greater value and antiquity, had been sold to her cousin, a Plouergast, and wife of the Préfet of Clermont, to enable her to send Blanche to the Sacré Cœur for a year. That year of schooling, just at the time of her first communion, was all the regular instruction the child had ever had. It was a comfort to poor Madame Tréguier to think that her property had not passed out of the family; and it was a comfort too to think that Blanche had for a short time been associated with girls of her own rank. The first communion was, naturally, an epoch in girls' lives. They dated later events from it, and remembered in after life who had been their companions on the first communion-day.

"If Blanche is ever able to mix in society," said Madame Tréguier, "she has the nucleus of a set of acquaintances. My position can never be humbler, and I *may* rise. I do not see how, but I like to think it possible, for Blanche's sake."

Meanwhile, Blanche's existence was dull and colorless enough. Her young companions of the Sacré Cœur had forgotten her. Now and then a friend of her mother's, neither so poor nor so proud, nor perhaps her equal in birth, would spend a dull half-hour in the little sitting-room. Once a month Madame allowed herself a Sunday evening out, and then Blanche accompanied her to a whist-party at Madame la Présidente's. But the poor child confided to me that she hated whist, and would stay at home, only that then her mother would have to carry the lantern herself. Poor things! their energies were all bent to the solving of the sad and difficult problem: How to look like gentlewomen on a thousand francs a year!

"I sometimes think," said Blanche one day, "that it is a great pity I was ever born. If I were out of the way, my mother would be able to spend twice as much upon herself. I shall be glad when I am twenty-five, because then I shall be able to go to market alone, since it is only round the corner of the next street. When I think of all the money that old Filomène Batz has had for going to market with me ever since I was a child of eleven, I feel quite angry; and really, when I pay the old creature every month, though 'tis but a trifle, I feel as if it were my heart's blood. If I had all the money in a box that Mamma has paid her these years, how happy I should be!"

"And what would you do with it, my pet?"

"I should put it by, and add to it little by little," she said in an eager whisper. "And in some years from this I should have enough, adding what I get by embroidery, to buy Mamma a shawl to wear when she goes to church every morning. I can't bear her to go to the five o'clock mass, the servants' mass, as she does all the year round," said Blanche impatiently. "If she had not me to maintain, she would be able to have a real cashmere, and pay some one to take care of the bureau while she

went to High Mass, like all the St. Aignan ladies. Oh, I know, I have calculated it many times. When I think of all poor Mamma has endured," she continued, "it makes me so sad, that I can't say my prayers properly. And of course Mamma must feel her position much more than I do mine, for I am only a baron's daughter, but she is the daughter of a marquis."

We were in Madame Tréguier's kitchen and Blanche was at her wash-tub when she made this speech. So these were all Blanche's aspirations at eighteen!

One spring morning, Blanche, who had been busy with her household work since five o'clock, came hastily into my sitting-room, exclaiming, "It is too detestable!" with a little angry stamp of her foot, as she stopped in front of me.

"What is too detestable?" I asked coolly, rather amused at the proud little thing's babyish petulance.

"Everything! My cap!"—she tore it off her head—"the pitcher! He—yes, he is a most detestable, forward, presuming young man!"

Was it possible any one could have been rude to Blanche? I began in my turn to feel angry, and begged her to tell me all.

Blanche, instead, began to cry bitterly.

"It was not meant for an insult, perhaps," she sobbed, as soon as she could speak; "but it is quite as bad as if it were. I feel insulted whether he meant it or not."

By degrees I got her to tell me what it was. She had forgotten to fetch water from the well in the court the night before, and had been obliged therefore to go down that morning. She had waited till seven o'clock, because the servants belonging to the four families who took their water from that well would have got their supplies by that time, and if no one saw Blanche drawing water, no one would be reminded of Madame Tréguier's want of a servant.

"Of course," said Blanche, drying her eyes for a minute, "I know they know we keep no servant, but if they don't see me doing menial work, I don't care."

"My poor little ostrich! And this time a servant did see you—a man-servant, was it?"

"No, ah no, it was a great deal worse

than that," Blanche sobbed, leaning her head on my lap. "It was a gentleman who saw me! I had stopped to take breath, for the pitcher was heavy. And he was running down-stairs, and then he said something—I don't know what—and seized hold of the pitcher. I never gave him leave. He actually carried it up to our door. I was struck dumb; I didn't even say 'Thank you;' and I am very glad I didn't. The impertinence of those young men!"

I tried to persuade Blanche that the young man had only been moved by a proper feeling of compassion at seeing a young woman toiling up-stairs with a heavy pitcher. But Blanche did not choose to take that view of the matter.

"If he had supposed me to be a young lady he would have waited till I had given him leave, before venturing to touch anything belonging to me. I will take care never to be mistaken for a bourgeoisie again. I will wear a hideous woollen thing on my head instead of a cap, and I will fetch water before any one in the house is stirring, or else go without."

"And deprive your mother of her morning coffee, proud, selfish child?"

"I can't help it," said Blanche defiantly. "If I were rich, oh then I'd be humble enough! But my pride is all I've got, and I mean to keep it."

One day, about a month after this, Madame Tréguier sent me a message to beg I would come to her in her bureau. I went down, wondering what could be her need of me; for, though by going there once I had in a manner established a claim on her friendship, I had never ventured there again, except to buy postage-stamps.

She told me in little disjointed hurried sentences, while people were going in and out,—for it was market-day, and all the country people were getting their snuff-boxes and tobacco-pouches filled for the week,—that she had had an offer of marriage for Blanche, and that she was in a puzzle, and wanted to talk it all over. I knew well enough the comfort of being able to talk a thing over, so I ensconced myself behind the counter, and actually sold two sous' worth of tobacco for Madame, while she told me what lay on her mind.

The name of the young man was Tris

tan de Kermartin; he was a sous-lieutenant in a regiment of the line. He was as noble and as proud as the Tréguiers, "but, thank Heaven!" said poor Madame with a sigh, "not in such narrow circumstances." But yet he was far from rich, and if Blanche married him, she would be obliged to be a careful housekeeper. M. de Kermartin had been most explicit as to his family and circumstances. The great hitch—that of Blanche's want of money—he did not choose to consider a hitch at all. As for the caution-money required by Government before an officer is allowed to marry, he had offered to supply it all himself.

"It shows that he really wishes to marry Blanche," said Madame Tréguier, with a mixture of pride and pleasure and sadness. "But oh! to think that I have not even a dowry of three thousand five hundred francs for my poor child!"

When Madame Tréguier had said all she wished to say, I left her, promising to run in again in a day or two. She was going to see her confessor about it, she said, and should probably abide by his decision. I believe M. de Kermartin's genealogy made her more inclined to him than anything else. When I went to Madame Tréguier's two days after, I found the confessor there, and a young man, a good-looking fellow, who was M. de Kermartin. Then it was all settled! I thought Blanche had made up her mind easily enough, but of course it was no affair of mine. I felt glad I had heard all Madame's talk without offering a single word of advice. I would not for any consideration have accepted the responsibility of that young creature's weal or woe, in ever so small a degree.

"Mademoiselle," said Blanche, when the two gentlemen were gone, "do you know who he is? He is the detestable young man!"

Madame Tréguier looked mystified. "Blanche," she said, reproachfully; "M. le Curé told you you had but to say a word, and——"

"Oh, Maman, I am well content," laughed Blanche; "I dare say I may get used to him in time."

The wooing went smoothly enough, I believe, but I saw little of Blanche for some time. One day, when I was ac-

cusing her to myself of being fickle, and debating whether I would go and see her or stand upon my dignity and wait for her to come and see me, she came in suddenly, announcing that she had something very particular to ask me about.

"Mademoiselle, I want to earn some money! I've wanted to before, but now I really must. M. Tristan has been talking to Mamma about the caution-money. He wants—that is—he doesn't want to wait. But I—the more I think, the more I dislike the idea of his giving it. He would be buying me—and I'll be bought by nobody," said Blanche, scornfully. "If three thousand five hundred francs are necessary for me to marry, they shall come from my hand—and I'll be beholden to nobody for them."

"If you really wish to earn money," I said, "I would advise your setting up a shop, close to your mother's. You might set up a wool shop, or something of that sort, and get on very well, I dare say."

"But the capital?"

"I would supply that. I have the means."

"Dear, kind, good Mademoiselle! But no, I should be in your debt, and I could not bear that. It seems to me I should not love you as I do if I owed you money."

"That would be unjust to me, Blanche."

"Perhaps. But I can't help myself, you know I can't. If I knew I could pay you back instantly, I'd take the money without hesitation. But there! what is the good of talking? I know Mamma would die rather than see me keep a shop. Try to think of something else, Mademoiselle, pray."

I did think of something else, to which Madame Tréguier was brought with some difficulty to give her consent. I found for Blanche a place as nursery-governess in an English family, where she would have forty pounds a year. Poor child! she danced for joy when I told her the situation was hers if she would accept it. I warned her that she would be homesick and worried, and vexed in a thousand ways; that she must make up her mind to endure without complaining.

"I'll care for nothing, so long as I

earn this money for myself," was her resolute answer.

Four years after this, I went to St. Aignan to see the Tréguiers. Blanche was at home. Her employer's children had grown beyond her teaching, and she was going to look for another situation. M. de Kermartin was there too; he had come to beg that there might be no further delay. War had been declared with Austria; his regiment might be ordered to Italy at any moment. Of the three thousand five hundred francs Blanche had set herself to earn, nine hundred were still wanting. He entreated Blanche to accept the nine hundred and make him happy. If the regiment once received orders to march, it would be too late.

Blanche was immovable. "I will never be bought for nine hundred francs!" she said, scornfully, when M. de Kermartin was gone, and I, feeling drawn towards him, began to plead his cause.

"He is good, he is faithful, as you say," she cried; "but I cannot do it. Alas! do not ask me, Mademoiselle."

Would she take the money from me? Call it a loan or a gift, as she pleased. I was ready and anxious to give it.

"What! Begin my married life in debt? Never!"

All our arguments were thrown away, and I believe both M. de Kermartin and I left St. Aignan with our hearts feeling sore towards Blanche. He was ordered off with his regiment to Italy.

My anger vanished, however, when Madame Tréguier wrote telling me that her daughter was wearing herself out with anxiety; and when Blanche wrote, confessing that she had been too proud, and that she wished, now it was too late, that she had taken my money. In August, I went again to St. Aignan. Then followed the days of Magenta and Solferino; days of illumination and speechifying and horrible carnage. Proclamations were made by the Maire. The army had performed prodigies of valor. The inhabitants were invited to decorate their house-fronts and light up their windows; and "*Vive l'Empereur!*" cried the tambour and his following of ragamuffins.

On one of these sad lit-up nights, when Blanche, after putting three wax

candles in each window, had gone into her room to cry by herself, Madame Tréguier got a letter from the colonel of M. Tristan's regiment. He had got his captaincy, he had got the cross of the Legion of Honor; for he, too, had performed prodigies of valor. And now, with a broken arm and a head cut open, the poor fellow had begged his colonel to write and ask Madame Tréguier and her daughter to meet him at Toulon. The invalids were being sent home, and he would be among them.

"He must be out of his mind to ask such a thing," said Madame Tréguier to me. "He does not reflect on the expense. And even had I the money, how could I leave the bureau? He ought to know, that if I could afford to pay an assistant I should not sit behind the counter myself."

She would have written to excuse herself from coming, but I prevented her. I made her understand that I wished to do something to show my regard for M. de Kermartin, and that my taking her place as her daughter's travelling companion would show it sufficiently. There was a moment's hesitation, but the request was put so as to shield her pride—it was not herself I was anxious to oblige—and she consented.

That night Blanche and I set off; poor Blanche made no objection to taking my money now.

"Had I but listened to you," she said to me, as the diligence rolled and jolted along in the darkness, "I might have been on my way to nurse my husband."

I did what I could to cheer her up. The best thing was the travelling as fast as express trains and posthorses could take us to Toulon. Leaving Blanche at the hotel, I went to the Ministère de la Guerre, to find out whether the invalids of M. de Kermartin's regiment had arrived, and was told that a thousand, of which his company formed a part, would enter to-morrow.

"Will the invalids walk, Monsieur?" I inquired in surprise.

"Those that have legs will walk, those that have none will ride," was the answer.

Blanche's spirits rose when I told her that M. de Kermartin would probably march with his company.

"I ought to be thankful his legs are all right, at least," she said.

Early on the morrow we drove outside the Porte d'Italie, intending to wait there for the arrival of the soldiers. But we were told that no carriages would be allowed to stand till they had marched past. We had no alternative but to send the carriage back and stand waiting under a broiling sun in the midst of the filthy, noisy crowd that collected outside the Porte as the morning went by. Blanche made no complaint, but stood looking for the cloud of dust in the distance. At last they appeared, ragged, haggard, limping, the brave, victorious thousand. Every now and then, some one would rush forward from the crowd and clasp a poor fellow round the neck and drag him back into a group of people, more than half women; and there would be vociferatings and embracings and words of tenderness intermingled with vile swearing. Blanche looked at one group. "I envy those creatures; nothing restrains them," she said bitterly, and turned away. The ragged victors marched past, Blanche with strained eyes looking from one to the other. When the last rank had entered the Porte d'Italie, she turned to me with a cry: "He is not here, he is dead!"

The crowd had receded; she and I were left alone. I took her inside the archway, and begged a corporal on duty to let us sit for a moment on the bench. He was civil, and ordered a soldier to fetch Blanche a cup of water. The man brought it in a tin cup. Blanche took it weeping: "Has my poor Tristan always had water to drink, even out of a tin cup, I wonder?" she said. I left her on the bench, and peeped out into the hot, glaring road. I saw a few poor stragglers on crutches. I went up to one of them and stopped him. "Tell me, *mon brave*," said I, putting a gold piece into his hand, "do you know anything of M. le Capitaine de Kermartin?"

The poor fellow stared dully at the money; he was past being thankful. "M. le Capitaine is coming in waggon number three, if he is alive," he said in a hoarse faint voice, and hobbled on after his comrades. We sat till the waggons appeared, and then we followed number three—Blanche giving a little

gasp whenever a jolt or a roll occurred—on to the gate of the military hospital.

I took Blanche back to the hotel, and went out to find the chaplain of the regiment. He helped me to inquire of the right people, and also made inquiries himself; and we were told that M. de Kermartin had gone into hospital with fever, and that friends and relations would be admitted the next morning at ten o'clock. "If M. de Kermartin's illness takes an unfavorable turn, I shall be sent for to administer the last sacraments," said the chaplain. "Is there any message you would like me to give, in case there happens to be a lucid interval before the last agony?"

I asked him to come with me to the hotel where Blanche was. I explained to her what his errand was, and left them together; for I felt that such a last message was not for me to hear.

We waited long next morning at the hospital gate before the clock struck ten. It was at any rate better for Blanche to wait there than in our room at the hotel, fancying that my watch and the hotel clocks were wrong, and that she would be defrauded of one minute of the short interview allowed. We were conducted to a ward up-stairs, and were just entering when a bell was heard ringing at the end of the corridor and our conductor bid us stand aside; the Host was coming. From every door in the corridor appeared figures, infirmity attendants, convalescents, Sisters of Charity, who all knelt as it passed. Our conductor followed, and signed to us to follow. "Who is it for?" I whispered. "Some officer who only came yesterday," was the answer. The little procession stopped half-way down the ward, the Sisters of Charity knelt round a bed, we knelt too; such of the invalids as could move turned themselves on their narrow beds, and signed themselves reverently.

"Thank God! it is not Tristan," Blanche whispered, stealing her hand into mine. She remained on her knees till the little service was over and the priest had quitted the ward. "Let us go on now," she said, as she rose comforted.

The Sister who had been kneeling near us now came up and asked whom we sought.

"M. de Kermartin."

"Behold him!" she answered, indicating with her hand the bed on which the dying person lay to whom the last sacraments had just been administered.

"Are you sure? Oh, *ma sœur*, it is impossible, M. de Kermartin is quite a young man," we whispered both together.

The Sister went to the head of the bed and looked at the man's face. She signed to Blanche to come nearer. "He has got a silk chain with a little medal attached to it, round his neck. Come, and see whether you recognize it. He won't know you; don't be afraid."

Blanche stepped forward, dragging me by the hand. She went close, then gave a cry and started back. "Hush, no noise!" warned the Sister.

"My hair, my medal, my Tristan! O Tristan, Tristan!" the poor child cried, flinging herself down by the bed.

"Hush, Mademoiselle, you disturb a dying man," said the Sister. "You must leave the ward."

But Blanche had got hold of a poor maimed hand that lay on the coverlet, and was kissing it and weeping over it. Instead of making her leave the ward the Sister turned away her head. "Poor thing," she said. "This is a sad case. His sister, doubtless. Madame, you will be able to tell the family that everything was done that could be done. But he came in too late. What with the fatigue and the heat, gangrene set in, and amputation of the broken arm did no good. He sank immediately. It will be all over in an hour or two. You had better take Mademoiselle away. She has been here quite long enough."

Just then there came a change over

the face of the sufferer. He opened his eyes, and seemed partly to recognize Blanche.

"Poor Blanche, cruel Blanche! *Vive l'Emp*—"

"The ward is to be cleared instantly. Mesdames, you must go. Not one instant longer," said the Sister, peremptorily, as Blanche prayed to be allowed to remain. As she took us out by one door, the surgeons entered by another.

That evening we two attended poor Tristan's funeral. I had thought of one thing which had not yet occurred to Blanche. I had made arrangements by which the grave became her private property forever. For a fair sum of money one may have the certainty that the grave of a departed friend will rest inviolate. If this is considered a privilege not worth securing, the plot of ground is liable to be used for a new tenant after a limited number of years. I took Blanche home to her mother. There was only one little outburst from her, as we looked our last at Toulon from the carriage windows. "Ah! he never knew how much I loved him! I never knew myself till now. Henceforth my whole life shall be one prayer for him. That wretched money I was so proud to earn all alone, shall be spent in masses for his soul."

Ten years after Tristan's death I went to St. Aignan and saw Blanche, and we went together to the commemorative service in the church on All Souls' day. "I think he must be happy," she said, as we walked home. "I think ten years of praying must be worth something. But if it has been worth something, it will still be worth something. So I shall go on."

Fraser's Magazine.

LECTURES ON THE SCIENCE OF RELIGION.

BY PROFESSOR MAX MÜLLER.

FIRST LECTURE,

Delivered at the Royal Institution, February 12, 1870.

WHEN I undertook for the first time to deliver a course of lectures in this Institution, I chose for my subject the *Science of Language*. What I then had

at heart was to show to you, and to the world at large, that the comparative study of the principal languages of mankind was based on principles sound and

scientific, and that it had brought to light results which deserved a larger share of public interest than they had as yet received. I tried to convince, not only scholars by profession, but historians, theologians, and philosophers, nay everybody who had once felt the charm of gazing inwardly upon the secret workings of his own mind, veiled and revealed as they are in the flowing forms of language, that the discoveries made by comparative philologists could no longer be ignored with impunity; and I submitted that after the progress achieved in a scientific study of the principal branches of the vast realm of human speech, our new science, the Science of Language, might claim by right its seat at the round-table of the intellectual chivalry of our age.

Such was the goodness of the cause I had then to defend, that, however imperfect my own pleading, the verdict of the public has been immediate and almost unanimous. During the years that have elapsed since the delivery of my first course of lectures, the science of language has had its full share of public recognition. Whether we look at the number of books that have been published for the advancement and elucidation of our science, or at the excellent articles in the daily, weekly, fortnightly, monthly, or quarterly reviews, or at the frequent notices of its results scattered about in works on philosophy, theology, and ancient history, we may well rest satisfied. The example set by France and Germany, in founding chairs of Sanskrit and Comparative Philology, has been followed of late in nearly all the universities of England, Ireland, and Scotland. We need not fear for the future of the Science of Language. A career so auspiciously begun, in spite of strong prejudices that had to be encountered, will lead on from year to year to greater triumphs. Our best public schools, if they have not done so already, will soon have to follow the example set by the universities. It is but fair that schoolboys who are made to devote so many hours every day to the laborious acquisition of languages, should now and then be taken by a safe guide to enjoy from a higher point of view that living panorama of human speech which has been surveyed and carefully mapped out by patient ex-

plorers and bold discoverers: nor is there any longer an excuse why, even in the most elementary lessons, nay I should say, why more particularly in these elementary lessons, the dark and dreary passages of Greek and Latin, of French and German grammar, should not be lighted up by the electric light of Comparative Philology. When last year I travelled in Germany I found that lectures on Comparative Philology are now attended in the universities by all who study Greek and Latin. At Leipzig alone the lectures of the professor of Sanskrit were attended by more than fifty undergraduates, who first acquire that amount of knowledge of Sanskrit which is absolutely necessary before entering upon a study of Comparative Grammar. The introduction of Greek into the universities of Europe in the fifteenth century could hardly have caused a greater revolution than the discovery of Sanskrit and the study of Comparative Philology in the nineteenth century. Very few indeed now take their degree of Master of Arts in Germany or would be allowed to teach at a public school, without having been examined in the principles of Comparative Philology, nay in the elements of Sanskrit grammar. Why should it be different in England? The intellectual fibre, I know, is not different in the youth of England and in the youth of Germany, and if there is but a fair field and no favor, Comparative Philology, I feel convinced, will soon hold in England too, that place which it ought to hold at every public school, in every university, and in every classical examination.

In beginning to-day a course of lectures on the *Science of Religion*,—or I should rather say on some preliminary points that have to be settled before we can enter upon a truly scientific study of the religions of the world,—I feel as I felt when first pleading in this very place for the Science of Language.

I know that I shall have to meet determined antagonists who will deny the possibility of a scientific treatment of religions as they denied the possibility of a scientific treatment of languages. I foresee even a far more serious conflict with familiar prejudices and deep-rooted convictions; but I feel at the same time that I am prepared to meet my antago-

nists; and I have such faith in their honesty of purpose, that I doubt not of a patient and impartial hearing on their part, and of a verdict influenced by nothing but by the evidence that I shall have to place before them.

In these our days it is almost impossible to speak of religion without giving offence either on the right or on the left. With some, religion seems too sacred a subject for scientific treatment; with others it stands on a level with alchemy and astrology, a mere tissue of errors or hallucinations, far beneath the notice of the man of science. In a certain sense, I accept both these views. Religion is a sacred subject, and whether in its most perfect or in its most imperfect form, it has a right to our highest reverence. No one—this I can promise—who attends these lectures, be he Christian or Jew, Hindu or Mohammedan, shall hear his own way of serving God spoken of irreverently. But true reverence does not consist in declaring a subject, because it is dear to us, to be unfit for free and honest inquiry: far from it! True reverence is shown in treating every subject, however sacred, however dear to us, with perfect confidence; without fear and without favor; with tenderness and love, by all means, but, before all, with an unflinching and uncompromising loyalty to truth. I also admit that religion has stood in former ages, and stands even in our own age, if we look abroad, ay, even if we look into some dark places at home, on a level with alchemy and astrology; but for the discovery of truth there is nothing so useful as the study of errors, and we know that in alchemy there lay the seed of chemistry, and that astrology was more or less a yearning and groping after the true science of astronomy.

But although I shall be most careful to avoid giving offence, I know perfectly well that many a statement I shall have to make, and many an opinion I shall have to express, will sound strange and startling to some of my hearers. The very title of the Science of Religion jars on the ears of many persons, and a comparison of all the religions of the world, in which none can claim a privileged position, must seem to many reprehensible in itself, because ignoring that peculiar reverence which everybody,

down to the mere fetish worshipper, feels for his *own* religion and for his *own* God. Let me say then at once that I myself have shared these misgivings, but that I have tried to overcome them, because I would not and could not allow myself to surrender either what I hold to be the truth, or what I hold still dearer than the truth, the right tests of truth. Nor do I regret it. I do not say that the Science of Religion is all gain. No, it entails losses, and losses of many things which we hold dear. But this I will say, that, as far as my humble judgment goes, it does not entail the loss of anything that is essential to true religion, and that if we strike the balance honestly, the gain is immeasurably greater than the loss.

One of the first questions that was asked by classical scholars when invited to consider the value of the Science of Language, was "What shall we gain by a comparative study of languages?" Languages, it was said, are wanted for practical purposes, for speaking and reading; and by studying too many languages at once, we run the risk of losing the firm grasp which we ought to have on the few that are really important. Our knowledge, by becoming wider, must needs, it was thought, become shallower, and the gain, if there is any, in knowing the structure of dialects which have never produced any literature at all, would certainly be outweighed by the loss in accurate and practical scholarship.

If this could be said of a comparative study of languages, with how much greater force will it be urged against a comparative study of religions! Though I do not expect that those who study the religious books of Brahmans and Buddhists, of Confucius and Laotse, of Mohammed and Nanak, will be accused of cherishing in their secret heart the doctrines of those ancient masters, or of having lost the firm hold on their own religious convictions, yet I doubt whether the practical utility of wider studies in the vast field of the religions of the world will be admitted with greater readiness by professed theologians than the value of a knowledge of Sanskrit, Zend, Gothic, or Celtic for a thorough mastery of Greek and Latin, and for a real appreciation of the nature, the pur-

pose, the laws, the growth and decay of language was admitted, or is even now admitted, by some of our most eminent professors and teachers.

People ask, What is gained by comparison?—Why, all higher knowledge is gained by comparison, and rests on comparison. If it is said that the character of scientific research in our age is pre-eminently comparative; this really means that our researches are now based on the widest evidence that can be obtained, on the broadest inductions that can be grasped by the human mind. What can be gained by comparison?—Why, look at the study of languages.—If you go back but a hundred years and examine the folios of the most learned writers on questions connected with language, and then open a book written by the merest tiro in Comparative Philology, you will see what can be gained, what has been gained, by the comparative method. A few hundred years ago, the idea that Hebrew was the original language of mankind was accepted as a matter of course, even as a matter of faith, the only problem being to find out by what process Greek, or Latin, or any other language could have been developed out of Hebrew. The idea, too, that language was revealed, in the scholastic sense of that word, was generally accepted, although, as early as the fourth century, St. Gregory, the learned bishop of Nyssa, had strongly protested against it. The grammatical framework of a language was either considered as the result of a conventional agreement, or the terminations of nouns and verbs were supposed to have sprouted forth like buds from the roots and stems of language; and the vaguest similarity in the sound and meaning of words was taken to be a sufficient criterion for testing their origin and their relationship. Of all this philological somnambulism we hardly find a trace in works published since the days of Humboldt, Bopp, and Grimm. Has there been any loss here? Has it not been pure gain? Does language excite our admiration less, because we know that, though the faculty of speaking is the work of Him who has so framed our nature, the invention of words for naming each object was left to man, and was achieved through the working of the human mind? Is Hebrew less carefully studied, because it is

no longer believed to be a revealed language sent down from heaven, but a language closely allied to Arabic, Syriac, and ancient Babylonian, and receiving light from these cognate, and in some respects more primitive, languages, for the explanation of many of its grammatical forms, and for the exact interpretation of many of its obscure and difficult words? Is the grammatical articulation of Greek and Latin less instructive because instead of seeing in the terminations of nouns and verbs merely arbitrary signs to distinguish the singular from the plural, or the present from the future, we can now perceive an intelligible principle in the gradual production of formal out of the material elements of language? And are our etymologies less important, because, instead of being suggested by superficial similarities, they are now based on honest historical and physiological research? Lastly, has our own language ceased to hold its own peculiar place? Is our love for our own native tongue at all impaired? Do men speak less boldly or pray less fervently in their own mother tongue, because they know its true origin and its unadorned history; or because they have discovered that in all languages, even in the jargons of the lowest savages, there is order and wisdom; there is in them something that makes the world akin?

Why, then, should we hesitate to apply the comparative method, which has produced such great results in other spheres of knowledge, to a study of religion? That it will change many of the views commonly held about the origin, the character, the growth, and decay of the religions of the world, I do not deny; but unless we hold that fearless progression in new inquiries, which is our bounden duty and our honest pride in all other branches of knowledge, is dangerous in the study of religions, unless we allow ourselves to be frightened by the once famous dictum, that whatever is new in theology is false, this ought to be the very reason why a comparative study of religions should no longer be neglected or delayed.

When the students of Comparative Philology boldly adopted Goethe's paradox, "*He who knows one language, knows none;*" people were startled at

first, but they soon began to feel the truth which was hidden beneath the paradox. Could Goethe have meant that Homer did not know Greek, or that Shakspeare did not know English, because neither of them knew more than his own mother tongue? No! what was meant was that neither Homer nor Shakspeare knew what that language really was which he handled with so much power and cunning. Unfortunately the old verb "to can," from which "canny" and "cunning," is lost in English, otherwise we should be able in two words to express our meaning, and to keep apart the two kinds of knowledge of which we are here speaking. As we say in German *können* is not *kennen*, we might say in English, *to can*, that is to be cunning, is not to *ken*, that is to know; and it would then become clear at once, that the most eloquent speaker and the most gifted poet, with all their command of words and skilful mastery of expression, would have but little to say if asked what language really is! The same applies to religion. *He who knows one, knows none.* There are thousands of people whose faith is such that it could move mountains, and who yet, if they were asked what religion really is, would remain silent, or would speak of outward tokens rather than of the inward nature, or of the faculty of faith.

It will be easily perceived that religion means at least two very different things. When we speak of the Jewish, or the Christian, or the Hindu religion, we mean a body of doctrines handed down by tradition, or in canonical books, and containing all that constitutes the faith of Jew, Christian or Hindu. Using religion in that sense, we may say that a man has changed his religion, that is, that he has adopted the Christian instead of the Brahmanical body of religious doctrines, just as a man may learn to speak English instead of Hindustani. But religion is also used in a different sense. As there is a faculty of speech, independent of all the historical forms of language, so we may speak of a faculty of faith in man, independent of all historical religions. If we say that it is religion which distinguishes man from the animal, we do not mean the Christian or Jewish religions only; we do not

mean any special religion, but we mean a mental faculty, that faculty which, independent of, nay in spite of sense and reason, enables man to apprehend the Infinite under different names, and under varying disguises. Without that faculty, no religion, not even the lowest worship of idols and fetishes, would be possible; and if we will but listen attentively, we can hear in all religions a groaning of the spirit, a struggle to conceive the inconceivable, to utter the unutterable, a longing after the Infinite, a love of God. Whether the etymology which the ancients gave of the Greek word *άνθρωπος*, man, be true or not (they derived it from *ὁ ἄνω ἀδρῶν*, he who looks upward): certain it is that what makes man to be man, is that he alone can turn his face to heaven; certain it is that he alone yearns for something that neither sense nor reason can supply.

If then there is a philosophical discipline which examines into the conditions of sensuous perception, and if there is another philosophical discipline which examines into the conditions of rational conception, there is clearly a place for a third philosophical discipline that has to examine into the conditions of that third faculty of man, co-ordinate with sense and reason, the faculty of perceiving the Infinite, which is at the root of all religions. In German we can distinguish that third faculty by the name of *Verunft*, as opposed to *Verstand*, reason, and *Sinne*, sense. In English I know no better name for it, than the faculty of faith, though it will have to be guarded by careful definition, and to be restricted to those objects only, which cannot be supplied either by the evidence of the senses, or by the evidence of reason. No simply historical fact can ever fall under the cognizance of faith.

If we look at the history of modern thought, we find that the dominant school of philosophy, previous to Kant, had reduced all intellectual activity to one faculty, that of the senses. "Nihil in intellectu quod non ante fuerit in sensu"—"Nothing exists in the intellect but what has before existed in the senses," was their watchword; and Leibnitz answered it epigrammatically, but most profoundly, "Nihil—nisi intellectus." "Yes, nothing but the intellect." Then followed Kant, who, in his great work

written ninety years ago, but not yet antiquated, proved that our knowledge requires the admission of two independent faculties, the intuitions of the senses, and the categories, or, as we might call them, the necessities of reason. But satisfied with having established the independent faculty of reason, as co-ordinate with the faculty of sense, or to use his own technical language, satisfied with having proved the possibility of apodictic judgments *a priori*, Kant declined to go further, and denied to the intellect the power of transcending the finite, the faculty of approaching the Divine. He closed the ancient gates through which man had gazed into Infinity, but, in spite of himself, he was driven in his *Critique of Practical Reason*, to open a side-door through which to admit the sense of duty, and with it the sense of the Divine. This is the vulnerable point in Kant's philosophy, and if philosophy has to explain what is, not what ought to be, there will be and can be no rest till we admit, what cannot be denied, that there is in man a third faculty, which I call simply the faculty of apprehending the Infinite, not only in religion, but in all things; a power independent of sense and reason, a power in a certain sense contradicted by sense and reason, but yet, I suppose, a very real power, if we see how it has held its own from the beginning of the world, how neither sense nor reason have been able to overcome it, while it alone is able to overcome both reason and sense.

According to the two meanings of the word religion, then, the science of religion is divided into two parts; the former, which has to deal with the historical forms of religion, is called *Comparative theology*; the latter, which has to explain the conditions under which religion, in its highest or its lowest form, is possible, is called *Theoretic theology*.

We shall at present have to deal with the former only; nay it will be my object to show that the problems which chiefly occupy theoretic theology, ought not to be taken up till all the evidence that can possibly be gained from a comparative study of the religions of the world has been fully collected, classified, and analyzed.

It may seem strange that while theoretical theology, or the analysis of the

inward and outward conditions under which faith is possible, has occupied so many thinkers, the study of comparative theology has never as yet been seriously taken in hand. But the explanation is very simple. The materials on which alone a comparative study of the religions of mankind could have been founded were not accessible in former days, while in our own days they have come to light in such profusion as almost to challenge these more comprehensive inquiries in a voice that cannot be disobeyed.

It is well known that the Emperor Akbar had a passion for the study of religions, so that he invited to his court Jews, Christians, Mohammedans, Brahmans, and Fire-worshippers, and had as many of their sacred books as he could get access to, translated for his own study. Yet, how small was the collection of sacred books that even an Emperor of India could command not more than 250 years ago, compared to what may now be found in the library of every poor scholar! We have the original text of the Veda, which neither the bribes nor the threats of Akbar could extort from the Brahmans. The translation of the Veda which he is said to have obtained, was a translation of the so-called Atharva-veda, and comprised most likely the Upanishads only, mystic and philosophical treatises, very interesting, very important in themselves, but as far removed from the ancient poetry of the Veda as the Talmud is from the Old Testament, as Sufism is from the Koran. We have the Zendavesta, the sacred writings of the so-called fire-worshippers, and we possess translations of it, far more complete and far more correct than any that the Emperor Akbar could have obtained. The religion of Buddha, certainly in many respects more important than either Brahmanism, or Zoroastrianism, or Mohammedanism, is never mentioned in the religious discussions that took place one evening in every week at the imperial court of Delhi. Abufazl, it is said, the minister of Akbar, could find no one to assist him in his inquiries respecting Buddhism. We possess the whole sacred canon of the Buddhists in various languages, in Pali, in Sanskrit, in Burmese, Siamese, Tibetan, Mongolian, and Chinese, and it is our

fault entirely, if as yet there is no complete translation in any European tongue of this important collection of sacred books. The ancient religions of China again, that of Confucius and that of Laotse, may now be studied in excellent translations of their sacred books by anybody interested in the ancient faith of mankind.

But this is not all. We owe to missionaries particularly, careful accounts of the religious belief and worship among tribes far lower in the scale of civilization than the poets of the Vedic hymns, or the followers of Confucius. Though the belief of African and Melanesian savages is more recent in point of time, it represents an earlier and far more primitive phase in point of growth, and is therefore as instructive to the student of religion as the study of uncultivated dialects has proved to the student of language.

Lastly, and this, I believe, is the most important advantage which we enjoy as students of the history of religion, we have been taught the rules of critical scholarship. No one would venture, nowadays, to quote from any book, whether sacred or profane, without having asked these simple and yet momentous questions: When was it written? Where? and by whom? Was the author an eye-witness, or does he only relate what he has heard from others? And if the latter, were his authorities at least contemporaneous with the events which they relate, and were they under the sway of party feeling or any other disturbing influence? Was the whole book written at once, or does it contain portions of an earlier date; and if so, is it possible for us to separate these earlier documents from the body of the book?

A study of the original documents on which the principal religions of the world profess to be founded, carried out in this spirit, has enabled some of our best living scholars to distinguish in each religion between what is really ancient and what is comparatively modern; what was the doctrine of the founders and their immediate disciples, and what were the afterthoughts and, generally, the corruptions of later ages. A study of these later developments, of these later corruptions, or, it may be, improve-

ments, is not without its own peculiar charms, and full of practical lessons; yet, as it is essential that we should know the most ancient forms of every language, before we proceed to any comparisons, it is indispensable that we should have a clear conception of the most primitive form of every religion before we proceed to determine its own value, and to compare it with other forms of religious faith. Many an orthodox Mohammedan, for instance, will relate miracles wrought by Mohammed; but in the Koran Mohammed says distinctly that he is a man like other men. He disdains to work miracles, and appeals to the great works of Allah, the rising and setting of the sun, the rain that fructifies the earth, the plants that grow, and the living souls that are born into the world—who can tell whence?—as the real signs and wonders in the eyes of a true believer.

The Buddhist legends teem with miserable miracles attributed to Buddha and his disciples—miracles which in wonderfulness certainly surpass the miracles of any other religion: yet in their own sacred canon a saying of Buddha's is recorded, prohibiting his disciples from working miracles, though challenged by the multitudes who required a sign that they might believe. And what is the miracle that Buddha commands his disciples to perform? "Hide your good deeds," he says, "and confess before the world the sins you have committed."

Modern Hinduism rests on the system of caste as on a rock which no arguments can shake: but in the Veda, the highest authority of the religious belief of the Hindus, no mention occurs of the complicated system of castes, such as we find it in Manu: nay, in one place where the ordinary classes of the Indian, or any other society, are alluded to, viz., the priests, the warriors, the citizens, and the slaves, all are represented as sprung alike from Brahman, the source of all being.

It would be too much to say that the critical sifting of the authorities for a study of each religion has been already fully carried out. There is work enough still to be done. But a beginning, and a very successful beginning, has been made, and the results thus brought to light will serve as a wholesome caution to every-

body who is engaged in religious researches. Thus, if we study the primitive religion of the Veda, we have to distinguish most carefully, not only between the hymns of the Rig-Veda on one side, and the hymns collected in the Sâma-veda, Yagur-veda, and Atharva-veda on the other, but critical scholars would distinguish with equal care between the more ancient and the more modern hymns of the Rig-Veda, as far as even the faintest indications of language, of grammar, or metre enable them to do so.

In order to gain a clear insight into the motives and impulses of the founder of the worship of Ahuramazda, we must chiefly, if not entirely, depend on those portions of the Zendavesta which are written in the Gâthâ dialect, a more primitive dialect than that of the rest of the sacred code of the Zoroastrians.

In order to do justice to Buddha, we must not mix the practical portions of the Tripitaka, the Dharma, with the metaphysical portions, the Abhidharma. Both, it is true, belong to the sacred canon of the Buddhists; but their original sources lie in very different latitudes of religious thought.

We have in the history of Buddhism an excellent opportunity for watching the process by which a canon of sacred books is called into existence. We see here, as elsewhere, that during the lifetime of the teacher, no record of events, no sacred code containing the sayings of the master was wanted. His presence was enough, and thoughts of the future, and more particularly of future greatness, seldom entered the minds of those who followed him. It was only after Buddha had left the world to enter into Nirvâna, that his disciples attempted to recall the sayings and doings of their departed friend and master. At that time everything that seemed to redound to the glory of Buddha, however extraordinary and incredible, was eagerly welcomed, while witnesses who would have ventured to criticize or reject unsupported statements, or to detract in any way from the holy character of Buddha, had no chance of even being listened to. And when, in spite of all this, differences of opinion arose, they were not brought to the test by a careful weighing of evidence, but the names of "unbeliever" and "heretic" (nâstika,

pâshanda) were quickly invented in India as elsewhere, and bandied backwards and forwards between contending parties, till at last, when the doctors disagreed, the help of the secular power had to be invoked, and kings and emperors convoked councils for the suppression of schism, for the settlement of an orthodox creed, and for the completion of a sacred canon. We know of King Asoka, the contemporary of Seleucus, sending his royal missive to the assembled elders, and telling them what to do, and what to avoid, warning them also in his own name of the apocryphal or heretical character of certain books which, as he thinks, ought not to be admitted into the sacred canon.

We here learn a lesson, which is confirmed by the study of other religions, that canonical books, though they furnish in most cases the most ancient and most authentic information within the reach of the student of religion, are not to be trusted implicitly, nay, that they must be submitted to a more searching criticism and to more stringent tests than any other historical books. For that purpose the Science of Language has proved in many cases a most valuable auxiliary. It is not easy to imitate ancient language so as to deceive the practised eye of the grammarian, even if it were possible to imitate ancient thought that should not betray to the historian its modern origin. A forged book, like the Ezour Veda, which deceived even Voltaire, and was published by him as "the most precious gift for which the West was indebted to the East," could hardly impose again on any Sanskrit scholar of the present day. This most precious gift from the East to the West is about the silliest book that can be read by the student of religion, and all one can say in its defence is that the original writer never meant it as a forgery, never intended it for the purpose for which it was used by Voltaire. I may add that a book which has lately attracted considerable attention, *La Bible dans l'Inde*, by M. Jacolliot, belongs to the same class of books. Though the passages from the sacred books of the Brahmans are not given in the original, but only in a very poetical French translation, no Sanskrit scholar would hesitate for one moment to say that they are

forgeries, and that M. Jacolliot, the President of the Court of Justice at Chandernagore, has been deceived by his native teacher. We find many childish and foolish things in the Veda, but when we read the following line, as an extract from the Veda :

La femme c'est l'âme de l'humanité,—

it is not difficult to see that this is the folly of the nineteenth century, and not of the childhood of the human race. M. Jacolliot's conclusions and theories are such as might be expected from his materials.

With all the genuine documents for studying the history of the religions of mankind that have lately been brought to light, and with the great facilities which a more extensive study of Oriental languages has afforded to scholars at large for investigating the deepest springs of religious thought all over the world, a comparative study of religions has become a necessity. A science of religion, based on a comparison of all, or at all events, of the most important, religions of mankind, is now only a question of time. It is demanded by those whose voice cannot be disregarded. Its title, though implying as yet a promise rather than a fulfilment, has become more or less familiar in Germany, France, and America; its great problems have attracted the eyes of many inquirers, and its results have been anticipated either with fear or with delight. It becomes the duty of those who have devoted their life to the study of the principal religions of the world in their original documents, and who value religion and reverence it in whatever form it may present itself, to take possession of this new territory in the name of true science, and thus to protect its sacred precincts from the inroads of mere babblers. Those who would use a comparative study of religions as a means for debasing Christianity by exalting the other religions of mankind, are to my mind as dangerous allies as those who think it necessary to debase all other religions in order to exalt Christianity. Science wants no partisans. I make no secret that true Christianity seems to me to become more and more exalted the more we know and the more we appreciate the treasures of truth hidden in the

despised religions of the world. But no one can honestly arrive at that conviction unless he uses honestly the same measure for all religions. It would be fatal for any religion to claim an exceptional treatment, most of all for Christianity. Christianity enjoyed no privileges and claimed no immunities when it boldly confronted and confounded the most ancient and the most powerful religions of the world. Even at present it craves no mercy, and it receives no mercy from those whom our missionaries have to meet face to face in every part of the world; and unless our religion has ceased to be what it was, its defenders should not shrink from this new trial of strength, but should encourage rather than depreciate the study of comparative theology.

And let me remark this, in the very beginning, that no other religion, with the exception, perhaps, of early Buddhism, would have favored the idea of an impartial comparison of the principal religions of the world—would have tolerated our science. Nearly every religion seems to adopt the language of the Pharisee rather than of the publican. It is Christianity alone which, as the religion of humanity, as the religion of no caste, of no chosen people, has taught us to respect the history of humanity, as a whole, to discover the traces of a divine wisdom and love in the government of all the races of mankind, and to recognize, if possible, even in the lowest and crudest forms of religious belief, not the work of demoniacal agencies, but something that indicates a divine guidance, something that makes us perceive, with St. Peter, "that God is no respecter of persons, but that in every nation he that feareth him and worketh righteousness is accepted with him."

In no religion was there a soil so well prepared for the cultivation of Comparative Theology as in our own. The position which Christianity from the very beginning took up with regard to Judaism served as the first lesson in comparative theology, and directed the attention even of the unlearned to a comparison of two religions, differing in their conception of the Deity, in their estimate of humanity, in their motives of morality, and in their hope of immortality, yet sharing so much in common

that there are but few of the psalms and prayers in the Old Testament in which a Christian cannot heartily join even now, and but few rules of morality which he ought not even now to obey. If we have once learnt to see in the exclusive religion of the Jews a preparation of what was to be the all-embracing religion of humanity, we shall feel much less difficulty in recognizing in the mazes of other religions a hidden purpose; a wandering in the desert, it may be, but a preparation also for the land of promise.

A study of these two religions, the Jewish and the Christian, such as it has long been carried on by some of our most learned divines, simultaneously with the study of Greek and Roman mythology, has, in fact, served as a most useful preparation for wider inquiries. Even the mistakes that have been committed by earlier scholars have proved useful to those who followed after; and, once corrected, they are not likely to be committed again. The opinion, for instance, that the pagan religions were mere corruptions of the religion of the Old Testament, once supported by men of high authority and great learning, is now as completely surrendered as the attempts of explaining Greek and Latin as corruptions of Hebrew. The theory again, that there was a primeval preternatural revelation granted to the fathers of the human race, and that the grains of truth which catch our eye when exploring the temples of heathen idols, are the scattered fragments of that sacred heirloom,—the seeds that fell by the wayside or upon stony places—would find but few supporters at present; no more, in fact, than the theory that there was in the beginning one complete and perfect primeval language, broken up in later times into the numberless languages of the world.

Some other principles, too, have been established within this limited sphere by a comparison of Judaism and Christianity with the religions of Greece and Rome, which will prove extremely useful in guiding us in our own researches. It has been proved, for instance, that the language of antiquity is not like the language of our own times; that the language of the East is not like the language of the West; and that, unless we make allowance for this, we cannot but

misinterpret the utterances of the most ancient teachers and poets of the human race. The same words do not mean the same thing in Anglo-Saxon and English, in Latin and French: much less can we expect that the words of any modern language should be the exact equivalents of an ancient Semitic language, such as the Hebrew of the Old Testament.

Ancient words and ancient thoughts, for both go together, have not yet arrived at that stage of abstraction in which, for instance, active powers, whether natural or supernatural, can be represented in any but a personal and more or less human form. When we speak of a temptation from within or from without, it was more natural for the ancients to speak of a tempter, whether in a human or in an animal form; when we speak of the ever-present help of God, they call the Lord their rock, and their fortress, their buckler, and their high tower; what with us is a heavenly message, or a godsend, was to them a winged messenger; what we call divine guidance, they speak of as a pillar of a cloud, to lead them the way, and a pillar of light to give them light; a refuge from the storm, and a shadow from the heat. What is really meant is no doubt the same, and the fault is ours, not theirs, if we wilfully misinterpret the language of ancient prophets, if we persist in understanding their words in their outward and material aspect only, and forget that before language had sanctioned a distinction between the concrete and the abstract, between the purely spiritual as opposed to the coarsely material, the intention of the speakers comprehends both the concrete and the abstract, both the material and the spiritual, in a manner which has become quite strange to us, though it lives on in the language of every true poet. Unless we make allowance for this mental parallax, all our readings in the ancient skies will be, and must be, erroneous. Nay, I believe it can be proved that more than half of the difficulties in the history of religious thought owe their origin to this constant misinterpretation of ancient language by modern language, of ancient thought by modern thought.

That much of what seems to us, and seemed to the best among the ancients, irrational and irreverent in the mytholo-

gies of India, Greece, and Italy can thus be removed, and that many of their childish fables can thus be read again in their original child-like sense, has been proved by the researches of Comparative Mythologists. The phase of language which gives rise, inevitably, we may say, to these misunderstandings is earlier than the earliest literary documents. Its work in the Aryan languages was done before the time of the Veda, before the time of Homer, though its influence continues to be felt to a much later period.

Is it likely that the Semitic languages, and, more particularly, Hebrew, should, as by a miracle, have escaped the influence of a process which is inherent in the very nature and growth of language, which, in fact, may rightly be called an infantine disease, against which no precautions can be of any avail?

And if it is not, are we likely to lose anything if we try to get at the most ancient, the most original intention of sacred traditions, instead of being satisfied with their later aspect, their modern misinterpretations? Have we lost anything if, while reading the story of Hephaestus splitting open with his axe the head of Zeus, and Athene springing from it full armed, we perceive behind this savage imagery Zeus as the bright Sky, his forehead as the East, Hephaestus as the young, not yet risen Sun, and Athene as the Dawn, the daughter of the Sky, stepping forth from the fountain-head of light—

Γλαυκῶπις, with eyes like an owl (and beautiful they are);

Παρθένος, pure as a virgin;

Χρυσέα, the golden;

Ἀκρία, lighting up the tops of the mountains, and her own glorious Parthenon in her own favorite town of Athens;

Παλλὰς, whirling the shafts of light;
Ἄλεια, the genial warmth of the morning;

Πρόμαχος, the foremost champion in the battle between night and day;†

Πάνοπλος, in full armor, in her panoply of light, driving away the darkness of night, and awakening men to a bright life, to bright thoughts, to bright endeavors.

Would the Greeks have had less reverence for their gods if, instead of believing that Apollon and Artemis murdered the twelve children of Niobe, they had perceived that Niobe was, in a former period of language, a name of snow and winter, and that no more was intended by the ancient poet than that Apollo and Artemis, the vernal deities, must slay every year with their darts the brilliant and beautiful, but doomed children of the Snow? Is it not something worth knowing, worth knowing even to us after the lapse of four or five thousand years, that before the separation of the Aryan race, before the existence of Sanskrit, Greek, or Latin, before the gods of the Veda had been worshipped, and before there was a sanctuary of Zeus among the sacred oaks of Dodona, one supreme deity had been found, had been named, had been invoked by the ancestors of our race, and had been invoked by a name which has never been excelled by any other name?

No, if a critical examination of the ancient language of the Jews leads to no worse results than those which have followed from a careful interpretation of the petrified language of ancient India and Greece, we need not fear; we shall be gainers, not losers. Like an old precious medal, the ancient religion, after the rust of ages has been removed, will come out in all its purity and brightness: and the image which it discloses will be the image of the Father, the Father of all the nations upon earth; and the superscription, when we can read it again, will be, not only in Judæa, but in the languages of all the races of the world, the Word of God, revealed, where alone it can be revealed,—revealed in the heart of man.‡

Blackwood's Magazine.

THE PRINCESSE DES URSINS.*

"THE dynasty of the Bourbons in Spain, which has just ended in a woman, was founded by a woman; for it was the Princesse des Ursins who was veritably Queen of Spain for the first fifteen years of their domination; and without the aid of her protection, courage, and indomitable spirit, the descendants of Philip V. would never have occupied the throne of Spain.

This extraordinary person has hitherto obtained too little consideration in the page of history. Writers, relying almost solely on the pages of St. Simon, have passed her by as a mere *intriguante*; but there was infinitely more than this in the Princesse des Ursins. She was the incarnate representative of the French spirit of progress in Spain, a female politician of the school of Richelieu and Colbert; she thoroughly understood by what means a stable government was to be secured for the country with which the peculiar circumstances of her early life had made her acquainted before the Bourbon accession; she had entirely comprehended by what measures bankrupt, beggarly, incapable Spain could be raised again in the scale of nations. The chief of these measures were the repression of the superb, punctilious, and factious spirit of the *grandees*, the reform in taxation and administration of the finances, the assimilation and centralization of the charter-system of provincial rights, privileges, and legislatures (the provincial *fueros*) which embarrassed the operations of government, and the suppression of ecclesiastic immunities in a country which was being yearly devoured by priests and monks. For the Spain which Charles II. had left behind him was a desert land, eaten up by *grandees* and churches and convents. After fifteen years of immense activity, Madame des Ursins, without a moment's warning, was forcibly seized in the mid-

dle of a horribly cold December night and carried out of Spain; but the greater part of the reforms she set on foot ultimately took root; and if Spain under the Bourbons rose in the scale of nations, much of the credit is due to Madame des Ursins. Although her sudden fall was owing directly to the ordinary ingratitude of absolute monarchs, yet the inspiring primal causes were the machinations of the *grandees* whose authority she had curtailed, joined to the dark workings of the Inquisition. To the honor of Madame des Ursins she dared to proclaim herself the enemy of this abominable institution; and the first, a small but ultimately deadly wound, which their power received, came from the hand of a woman, and that of a woman of nearly eighty years of age.

For, strange to say, the historic career, the public life, of Madame des Ursins did not begin till she was sixty-five years old. Her long life may be divided into five portions—that of the handsome, brilliant, witty, and intelligent Mademoiselle de la Tremoille up to the age of twenty-two; that of the loving and devoted wife, the Princesse de Chalais, up to the death of her first husband, Adrien Blaise de Talleyrand, Prince de Chalais, in 1670, when she was thirty-five years of age; that of the great Duchesse de Bracciano, when she was the leader of fashion and of elegant amusements in the great Orsini palace in the Piazza Navona, at Rome, after her second marriage in 1675; that of the Princesse des Ursins, which title she took after the death of the Duke of Bracciano in 1698, when her diplomatic and political career first commenced; that of the ex-regent of Spain, during her second residence at Rome, from 1715 to 1722, where she died at the age of eighty-seven.

If the Princesse de Chalais had been a mother, we might never have heard of the Princesse des Ursins; but, a solitary widow, childless and without scope for her great intelligence and her deeply affectionate nature, she seems to have thrown herself in the decline of life, when the brilliance of her beauty no

* "La Princesse des Ursins. Essai sur sa vie et son caractère politique d'après de nombreux documents inédits." Par M. François Combes. Paris, 1858. This volume, two volumes of Correspondence of the Princess, published by M. Geffroy, and the Mémoires of the time, have given us the materials out of which the present article is constructed.

longer inspired the makers of sonnets and madrigals, upon diplomacy and politics, from the very lack of womanly occupation.

She first became acquainted with Spain in 1663, when she accompanied her first husband, the Prince de Chalais, in his flight from France to escape the sanguinary edicts of Richelieu still in force against duelling. He had fought in one of the duelling encounters so common among the nobility of the Fronde, a duel of four against four, in which the Duc de Beauvilliers had been killed. From Spain they passed to Italy, where the Prince died while away from his wife at Venice. The Princess, who was at that time at Rome, showed exemplary grief as a widow, and gained the sympathies of all Roman society. She remained for some time secluded in a convent, and only five years afterwards accepted the hand of the Duke of Bracciano, the head of the Orsini family. This marriage, however, was not a happy one; the Duke and Duchess had different tastes and divergent views in politics. The Orsini Palace was, however, the centre of all that was distinguished in Rome. The Duchess supported the honors of her position with consummate grace, but also with a great deal of extravagance—an additional item in the Duke's list of complaints against her, for from the age of forty to the commencement of her diplomatic career, she seems to have taken part with a ready spirit in all the joyous follies of Roman life, in all "the revel and the masque of Italy," and to have wanted no taste for art or for the growing superiority of Italian music. She was, according to St. Simon, well qualified to take the lead in any line of life. She was above the middle height, with blue eyes which expressed anything she pleased; she had a perfect figure and bust; a face without regular beauty, but yet charming; a noble air, and exquisite and natural grace. St. Simon, whose experience was great, said he never saw anything approaching her charm of manner; it was flattering, caressing, animating, yet kept always in due limits, as though she wished to please merely for the sake of pleasing. It was impossible to resist her when she had set her heart on captivating and seducing. With all this, a most agreeable

voice and a faculty in conversation delicious, inexhaustible, and highly entertaining. Since she had seen many countries and all their chief people, she was, moreover, a great judge of character; she attracted to her the best society, and kept quite a little court of her own; and from her position at Rome, and intimacy with the Roman cardinals, she became a mistress in that art of polished and subtle intrigue of which the Papal Court was the unrivalled school. The portrait of St. Simon, even in this reduced form, will afford some explanation of the absorbing fascination which the Princesse des Ursins exercised on the young, brilliant, devoted, and heroic-natured Marie Louise, the first wife of Philip V. "Don't let her speak to you for two hours," said Philip V. to his second wife, as she was about to meet the Princesse des Ursins in her first and only interview, "or she will enchain you forever." During the time of her second marriage she made sundry visits to France, and renewed her acquaintance with Madame de Maintenon, of whom she had been a rival in the salons of the Hôtel d'Albret when the latter was only Madame Scarron and she herself was but a girl. It may be imagined that the unrivalled position and influence of Madame de Maintenon may have stimulated the seeds of ambition hitherto dormant in her nature, for she certainly was conscious of no inferiority to Madame de Maintenon. It has been even said that she nourished secretly the design of displacing the rigid favorite in the good graces of Louis XIV. Of this there is no proof, but at any rate she was sufficiently conscious of her abilities and her power of command to look out for a theatre for her activity; and the force of circumstances, as well perhaps as her own calculations, drew her to Spain.

During the time of her visits to France and to Versailles the question of the Spanish Succession was agitating all Europe; and, as is well known, it was the opinion of Innocent XI., formally expressed in a letter, which finally determined the moribund Charles II. to draw up his famous testament in favor of the Duke d'Anjou, grandson of Louis XIV. The Duchess of Bracciano, connected by alliance with the greatest Pontifical families, with her little court in the Piazza

Navona, attended by Roman cardinals, seemed a person deserving of the attention of the French Government. She was thoroughly tutored in the matter by Torey, the French minister, and it was recommended to her diplomatic advocacy at Rome. She had the credit of having exercised a real influence upon the judgment of Innocent XI.; but she achieved something more effective even than this. Portocarrero, the Archbishop of Toledo, the greatest ecclesiastic in Spain, the confidential adviser and minister of Charles II., came to Rome to receive the *pallium* and the cardinal's hat. She completely captivated Portocarrero, and elicited from him a promise to advocate the French claims to the succession with Charles II. When Louis XIV. knew that Portocarrero was won over, he considered the matter settled. He granted a pension to the Duchess of Bracciano, and Torey wrote that he had now only to lower his flag before her in matters of diplomacy, and to become her pupil.

But neither Louis XIV., nor Torey, nor Madame de Maintenon, had any notion of the heights to which ambition was now leading the Duchess of Bracciano, who, on the death of her husband, appeared before the world as the Princesse des Ursins, Ursins being the French for Orsini, her late husband's family name. The Duke had become reconciled to her before he died, and left her all he possessed; but she disposed of the duchy and title of Bracciano to Don Luigi Odelscalchi, her late husband's kinsman. The young Duke of Anjou had now gone to Spain, and taken the title of Philip V., and was about to be married to a princess of Savoy, aged fourteen, the daughter of the wily Victor Amadeus, and the sister of the Duchesse de Bourgogne. According to the usage of the Spanish Court, the *camerera mayor*, the head lady-in-waiting of the Queen, was an indispensable and awful functionary, a sort of female grand inquisitor of etiquette, to whom constant domesticity with the royal couple gave terrible power and authority. If such was the case ordinarily, what ascendancy might not a *camerera mayor* such as the Princesse des Ursins attain over the minds of a boy king and a girl queen in the present condition of Spain?

Such was the reasoning of Madame des Ursins as she set about diplomatizing for the post of *camerera mayor*; and she diplomatized in a way which proved her admirable sagacity in the ways of courts, and her knowledge of the natures of kings and ministers. She was by no means so impolitic as to ask at once for the post, which was of course virtually in the gift of Louis XIV.: such a proceeding, she knew, would raise the suspicions of the politic monarch in her disfavor. She asked merely, as a preliminary, for the honor of being the lady attendant who, as custom was, accompanied a Spanish royal bride across the frontier. But she had already previously carefully prepared her way to Madrid by gaining entirely the friendship of Portocarrero in her intercourse with him at Rome, and by acquiring the favor of the Duchesse de Bourgogne, and of the Piedmontese Court, through her activity in obtaining the goodwill of the great Spanish ecclesiastics and *grandees* for the Piedmontese marriage of Philip V.

Carefully and cautiously did she gradually disclose the real object of her diplomacy, working by turns through her friend, the Maréchal de Noailles, through the Maréchale, the friend of Madame de Maintenon, through Madame de Maintenon herself, through Torey the minister. The Maréchale de Noailles, later called by the wits of Versailles the mother of the ten tribes of Israel (she had twenty-two children), was fully equal to the confidence reposed in her by the Princesse des Ursins and to the occasion. "I think," the Princess suggested to Madame de Noailles, "that if I was in a good position I might make rain and sunshine in the Court of Spain; and that it would be easy enough for me to establish a dozen of *mesdemoiselles vos filles* in that country." Moreover, the young Duc d'Ayen, the eldest son and heir of the Noailles, was named for a mission to Spain at the Court of Philip V. The Princesse des Ursins took care to recommend him carefully to Portocarrero and her friends among the *grandees*; and when the Duc d'Ayen, who had himself considerable tact and ability, was making way to the favor of king and court, she began to make use of his influence in the most delicate way possible—for it naturally required great

nicety of management for an elderly lady of the great position of the Princess to solicit any favor of so young a man as the Duc d'Ayen at the very outset of his career. The way in which she approached the young Duke was a model of diplomatic subtlety. "What opinion can you have of us Roman ladies," she wrote, "when you see me making advances towards you, and giving myself the honor of writing to you, *before you have discovered this confidence of mine?*" A more subtle turn of expression for saving her dignity could hardly be invented. The Princess, having thus broken the ice, continues her letter by asking the Duke to speak of her to Philip V. as a lady fitted to perform the merely honorary charge of conducting his young bride to Madrid. Next she brought into play her old intimacy with Portocarrero; and Portocarrero, in pursuance of former promises, and at the Princess's suggestion, sent her a letter representing that, in his opinion and that of the chief statesmen of Spain, the Princesse des Ursins was admirably qualified for the distinction she desired. This letter of Portocarrero was duly forwarded to the Maréchale de Noailles, who laid it before the French minister, Torey; but Torey replied that the selection must depend on the choice of Victor Amadeus, Duke of Savoy, the father of the future Spanish bride.

The Princesse des Ursins, however, was not to be put off with such a reply. She knew that Torey was favorably inclined towards her, and she now, through her friend the Maréchale, made another fine diplomatic suggestion, to the effect that Torey should pay a visit to the Piedmontese ambassador at Paris, and should, just in the way of *casual conversation*, carelessly inquire whom the Duke of Savoy thought of naming as travelling *chaperone* to the Piedmontese princess, and then just as carelessly throw out a hint that the Princesse des Ursins would perform such a service admirably well. The Princess, knowing the ways well of kings and ambassadors, was sure the ambassador would report this conversation to the Duke of Savoy. The event justified her prevision, for on writing a letter with her own hand to the Duke of Savoy, he replied that he himself was not opposed to her request, only

he referred the matter to Louis XIV. This was precisely the point to which the Princess desired to come—that Louis XIV. and the Court of Versailles should have the absolute decision of the affair. All her diplomatic stratagems now, therefore, were made to converge on Madame de Maintenon and Louis XIV. himself. She approached Madame de Maintenon in the subtlest and most refined insinuations of flattery; and as for Louis XIV., she, with a consummate air of much self-denial and modesty, requested that it should be represented to him that she would only, if it seemed best, *go as far as the frontier* in an official position, and afterwards proceed to Madrid to pay her court to the young King and Queen in a private capacity; and indeed, moreover, *she really had business at the Spanish capital*. Were the meshes of diplomacy ever spun of a finer and subtler texture than these? Nevertheless, Louis XIV., with his appreciation of character and his knowledge of the ways of ambition, saw perhaps before anybody through those fine-drawn manoeuvres, and was not displeased by them. He saw clearly that what Madame des Ursins really was aiming at was the post of *camerera mayor*. Nevertheless, the salutary advice he had given to his grandson on his departure for Spain was to take care that all his chief officers were Spaniards, and not to favor the French and arouse feelings of national jealousy; he consequently had his doubts about the advisability of naming a French lady for so thoroughly Spanish a dignity as that of the *camerera mayor*. But he also had advised Philip V. to place every confidence in Portocarrero, and Portocarrero was not only wholly gained over by the Princess des Ursins, but Portocarrero produced some very solid reasons why, in the present instance, a Spanish lady ought *not* to fill the post, and why the choice of a foreign noblewoman, who had no family to lead into honors, dignities, and pensions, and was thus not calculated to excite the jealousy and animosity of families rivaling with her own, would in every respect be preferable.

Madame de Maintenon's mediation was the last and great trump-card which the Princess laid down upon the hesitation and scruples of Louis XIV. The game was won, and she was actually

named *camerera mayor* before she had quitted Rome, and before the young Piedmontese princess had left Turin.

The Princesse des Ursins began forthwith to organize her household so that she might enter Spain in due state. She strained all her resources to make a fitting display in the eyes of a people fond of pomp. "I have usually four gentlemen in waiting," she wrote to the Maréchal de Noailles; "now I take another, a Spaniard; and when at Madrid I shall take two or three more, who shall be well acquainted with the Court and be calculated to do me credit. Of the four which I now entertain, two are French and two are Italian. One of the latter is of one of the best Sicilian families, the other is a near relative of Prince Vaini." She increased her pages to the number of six—"tous gens de condition et capables d'être chevaliers de Malte." She had her chaplain. "I do not speak of my other attendants; I have these of every kind. I have twelve lackeys—my ordinary supply. When arrived at the Court, I will increase the number with Spaniards." She had one very fine carriage, "*sans or ni argent néanmoins*;" but she had another, a gilded state carriage, lately ordered; this was to go with six horses when she drove outside Madrid. However, she assures her correspondent, the mother of twenty-two children, with an eye on the royal coffer, that she will not have recourse to the treasury of Louis XIV. "*Je suis gueuse, il est vrai; mais je suis encore plus fière.*" "On this occasion I will make it a point of honor not to demand anything. Nevertheless my expenses shall be suited to the splendor of my position, and shall make the Spaniards admire the greatness of the King." However, it appears that, on the eve of embarking on her great enterprise, she began to think seriously of the difficulties into which she was about to plunge. "I believe," she wrote to Torcy, "that I shall meet with as many adventures as Don Quixote in the undertaking you impose upon me."

She met the young Princess Marie Louise de Savoie at Villafranca, near Nice, to which place she had gone by sea. She was delighted with the appearance of the young queen, and wrote to Torcy, "qu'elle saurait faire la reine

à merveille;" and, indeed, Marie Louise, without being a perfect beauty, was a worthy sister of the Duchess de Bourgogne, the darling of Louis XIV. and the Court of Versailles. She was tall and well made, with a brilliant though pale complexion, with a loving heart and a noble nature, thoroughly capable of appreciating the fine qualities of Madame des Ursins, to whom she speedily attached herself with childish affection. From Villafranca and Nice the *camerera mayor* travelled through the south of France, side by side with her young charge, in a litter, to Figuières, on the Spanish frontier. There is no need to say that they were received with royal honors and discharge of artillery at every town on their route, and that, according to invariable Spanish custom on arriving at the frontier, the Piedmontese attendants were dismissed, and their place supplied by the stiff and formal ladies of Spain.

The marriage was to take place at Figuières, and Marie Louise was to enter Spain as queen in fact and in name. The young couple—the King of eighteen and the bride of fourteen—were duly united; but after the marriage ceremony some incidents ensued of an amusing character, most characteristic of Spain, and of the usual reception of royal Spanish brides.

The supper had been prepared half of French and half of Spanish fashion; the dishes half of one kind and half of the other. But the Spanish ladies—the attendants of their new young Queen—had visited the supper table before the royal couple sat down, and saw with disgust this array of heretical French meats on the table. Ever since the beginning of time, so to speak, the Spaniards had insisted that the brides of their sovereigns should, immediately on entering Spain, become pure Spanish at once, conform to the severe usages of Spanish etiquette, and take to the Spartan diet, the national *puchero*, and the garlic of Spain. The Spanish ladies at once seized these abominable French inventions, and threw them into corners of the room and out of windows into the street. This energetic proceeding naturally caused immense surprise to the only three foreign persons of the party at Figuières—to the young King and his bride, and to the Princesse des Ursins. Never-

theless, all had sufficient self-command to go through the supper without remark. However, as soon as the young Queen was alone with her husband and the Princesse des Ursins, her indignation broke loose. She sobbed, she wept, and she stormed. She complained bitterly of the dismissal of her Piedmontese attendants. She was indignant at the coarseness of the Spanish ladies, and declared that she would go no farther, but return to Piedmont. It was impossible to appease the wrath of the young bride. Philip finally left the room, hoping that, in his absence, the indignation of the Queen would subside; but there was no sign of this. Marie Louise passed the night obstinately alone, declaring in spite of all the remonstrances of Madame des Ursins, that she would return instantly back to Turin. Here was a scandalous beginning of royal wedded life! The poor child did not recover even on the following day from her ill-humor and vexation; so on the following night, Philip himself, acting on the advice of his chief gentleman-in-waiting, assumed the air of the injured party, and sent word to his Queen that he would retire to rest alone. This brought Marie Louise to reason. She apologized for her childish conduct, promised to behave in future like a queen and a woman; and on the third morning after the marriage the young couple left Figuières completely reconciled.

Madame des Ursins, in the commencement, wisely confined her cares to the duties of her office, which were for the most part of a singularly domestic character for a descendant of the great family of the Tremouilles. She writes to the Maréchal de Noailles, "Dans quel emploi, bon Dieu! m'avez vous mise? Je n'ai pas le moindre repos."

In fact, the Princess writes she could neither take her ease after dinner, nor eat when she was hungry. She was only too happy to snatch a bad meal as she ran on her duties. It was, she said, very rare for her not to be called the moment she sat down to table. "In truth, Madame de Maintenon would laugh if she knew the details of my charge. Tell her, I beg, that it is I who have the honor of taking the King of Spain's dressing-gown when he goes to bed, and of giving him that and his slippers when he rises.

That, however, I could make light of; but really it seems too absurd that every evening, when the King comes to the Queen's bedchamber, the Conde de Benavente should hand me the King's sword, and a bottle and a lamp, which I ordinarily upset on my dress." Indeed, among the other strange fashions of royal etiquette in Spain, there was one which provided that the King, when he went to visit the Queen at night, could go in a cloak armed with sword and buckler, and carrying a bottle. The *camerera mayor* had, moreover, to wake the King in the morning, and sometimes "he is so kind," wrote the Princess, "that he often sends for me two hours at least before I want to rise." All know of the rigors of old palace Spanish etiquette, which allowed kings to be roasted if the proper officer was not at hand to remove the brazier, and queens to be dragged by the stirrup to death by rearing horses, rather than permit them to be touched by a profane hand. Some of the incidents given by the Princess of the jealousy and rivalry of the great grandees on matters of etiquette are truly comic. Thus we have the venerable Patriarch of the Indies, who, however, the Princess says, looked like an ape, taking a napkin surreptitiously into church with him, and rushing at the most solemn moment of the sacrament before the King and Queen, and producing his cloth from his pocket for their use, because he found that it had been arranged that the *camerera mayor* should take his place at the ceremony. Another scene described in her letter is, if possible, still more amusing: thus we have the Conde de Priego and the Duque de Osuna fighting at the foot of the altar for the honor of moving his majesty's chair up to his *prie-dieu*. Both noblemen were very small, but the Duque de Osuna carried the day; and yet there was a moment, writes the Princess, when she thought the Duke, who was no bigger than a rat, would tumble beneath the chair, and fall upon the King at his *prie-dieu*, who would infallibly, if he had been knocked over, have fallen upon the Queen.

The influence of the strong mind of the Princesse des Ursins upon the youthful King and Queen of Spain became soon to be felt even in matters of government.

The state of ruin, hunger, and desolation of Spain at the time of the accession of the first Bourbon prince was something appalling. There are no records in history which present such a picture of beggared pride and misery and decay. The giant form which had once overawed the world had become a ragged scarecrow—an object of mockery and scorn. Charles II., the last king of the house of Austria, was a beggar and a pauper among monarchs. He was unable at times to find food for the table of the gentlemen of his bedchamber, and even oats and straw for his horses. He went on begging expeditions from town to town to ask for money, and generally in vain. The once-dreaded legions of Spain were reduced down to a miserable, starved, ragged remnant of unpaid boys and old men, numbering about fifteen thousand, officered by *hidalgos*, who begged in the streets of Flanders and in the ports of Spain. The dockyards which sent forth the invincible Armada had not a ship on the stocks. The art of shipbuilding was forgotten, and a few wretched men-of-war lay rotting in the harbors. Whole provinces had become denuded of towns and villages; the most fertile districts of Spain had become a desert; commerce and industry and agriculture were despised alike by all classes, and were in fact non-existent.

Nearly all the needs of Spain—its clothes and its very bread—were produced by foreign workmen. Each Spaniard desired, without income, to live like a nobleman. The population decreased yearly. People ceased to marry, or entered into monasteries and convents; and priests and monks owned, it was supposed, about a third part of the soil of Spain.

It was not then a misfortune for Spain to exchange the effete Austrian dynasty for the race of the Bourbons, under whose rule France had risen almost in the same proportion as Spain had fallen, which had adopted more humane principles of toleration and more enlightened ideas of political economy. Yet the difficulty of reconciling the Spaniards to any reforms or system of government imported from the institutions of their ancient enemies, to be carried out by the French counsellors of Philip V., was ne-

cessarily very great. The hatred of the *gavachos*, as the French have been called in Spain from time immemorial, was intense.

Hence it was that the influence of the Princesse des Ursins was so salutary. She was only ostensibly occupying the post of *camerera mayor* without any acknowledged mission from the Court of Versailles, and yet she was thoroughly acquainted with its policy and in constant correspondence with Torcy, the French Minister, and with Madame de Maintenon and the Maréchal de Noailles. On excellent terms at first with Portocarrero, who at the beginning of the reign of Philip V. was all-powerful, she had by far better opportunities of bringing about harmonious relations between the governments of France and Spain than the French ambassador himself, while her previous residence in Spain had made her well acquainted with the usages and necessities of the country.

The task, however, was no easy one of getting the Spaniards, on the one side, to accept the government of a French King, assisted by French ministers, and of co-operating with the policy of Versailles on the other, so as to satisfy the exacting supervision which Louis XIV. and his ministers exercised over Spanish affairs; for although Louis XIV. had given his grandson the advice not to surround himself with French ministers, and to respect all Spanish national feeling, yet this was but with the view of rendering the Spaniard more easily manageable for the purposes of his own ambition, and the maintenance of complete harmony between the two governments was indispensable in the war of the Spanish Succession.

It was no wonder, moreover, that a Queen of Spain should give herself wholly up to an adviser and companion like the Princesse des Ursins, for the monotony and isolation of palace life, guarded about by the inviolable prescriptions of Spanish etiquette, was something frightful. According to Spanish notions, the life of a Spanish queen should partake of the seclusion of the harem and the convent. She saw no society but those of her regular attendants. A tyrannical *camerera mayor* might, if she chose, be intolerable. She might, as did the *camerera mayor* of the first

queen of Charles II., prevent her from looking out of window. The stern gloom and rigidity with which *camereras mayores* had exercised their authority were habitual, and some of the former French queens of Spain had died of the terrible monotony of their prison life. It was, then, a great boon for the wife of Philip V. to be allowed the unprecedented luxury of a Frenchwoman for a *camerera mayor*, whose liveliness of nature, whose intellectual qualities, whose education, whose liberality in the matter of etiquette, and whose bright and good looks even at sixty-six made her an entertaining companion as well as a good adviser. The former Spanish queens had been condemned for amusement to insupportably childish games, something like spills, with their husbands, and to badly-acted Spanish plays. The Princesse des Ursins endeavored to lighten the heavy atmosphere of the Spanish Court by getting up theatrical amusements, in which Corneille and Molière replaced Calderon and Lopez de la Vega; and by concerts in which the music of the Italian masters, just then beginning to become fashionable in Europe, was first heard in the capital of Spain, in the palace of *Buen Retiro*. The young King and Queen were grateful for the vivacity and variety which she thus ingeniously and incessantly introduced into a life which both regarded as a kind of exile; and, moreover, the very domestic nature of her charge gave her an opportunity of tutoring the young Queen in such fashion that Philip V., who was perhaps the most uxorious monarch who ever reigned, was completely at the disposal of his wife.

The duties of her position naturally gave the Princess a right of advising on the manners, dress, and habits of the King and Queen; she extended this to matters of high policy, and invariably gave advice calculated to conciliate the Spanish nation towards the new dynasty. She advised the use of the Spanish language exclusively at Court, the performance by the Queen of the customary pilgrimages to the shrine of our Lady of Atocha, and other sacred places; the adoption by Philip V. of the Spanish costume, and especially of the stiff unsightly *golilla*, or Spanish ruff, to which the nobility were especially attached;

the royal attendance at bull-fights, and the practice of the national *juego de canas*; at the same time she strongly dissuaded the monarch from attending at those human sacrifices, the *autos da fe*, one of which was always prepared in honor of every new accession and every royal marriage. And the young Bourbon King was the first monarch who ventured thus to discountenance the practice of those rites of Moloch.

Madame des Ursins, indeed, did not hesitate to grapple at once with the Inquisition immediately on her arrival in Spain, and her success in delivering Aguilar Diaz, the confessor of the late King, from its dungeons, after a struggle of four years, created a new power in the country. Her influence became so manifest at last, that the French ministers and Court attendants, including the Jesuit confessor who accompanied Philip V. to Madrid, all grew jealous of the great influence of the *camerera mayor* over the royal councils. The French ambassador in 1703, the Cardinal d'Estrées, especially had made himself remarkable by his hostility to Madame des Ursins, and a struggle for dominion took place between them. Louis XIV., who was the arbiter of their differences in the close watch which he kept upon the affairs of Spain, decided at first in favor of his ambassador, and determined on recalling the *camerera mayor*. He changed his determination on account of the urgent entreaties of the Queen, who supplicated that if Madame des Ursins was recalled, the Cardinal and his nephew, the Abbé d'Estrées, who served him as secretary, should be recalled also. Other representations in favor of the Princess, which portrayed all Spain as ardently desiring the continuance of her stay in Spain, were made. A temporary reconciliation between the Cardinal and the Princess followed, as the price of the withdrawal of the recall of Madame des Ursins. However, at the last the Cardinal was removed, and the Abbé d'Estrées, who had deserted his uncle when he saw that he was likely to be worsted in the conflict, remained as ambassador; and the triumph of Madame des Ursins was completed by the recall of the Jesuit confessor, and nearly every French minister or attendant possessed of any authority in Spain. However, the Abbé d'Estrées, as ambassador, was unable to reconcile him-

self to the part he had undertaken, and while professing outwardly complete submission to the superiority of the *camerera mayor*, treacherously wrote a despatch to the French minister, full of bitterness and insinuation against his rival. He had offered himself to submit every despatch to the perusal of Madame des Ursins before sending it away, but this one despatch he endeavored to send surreptitiously by the ordinary courier, who not seeing upon it the accustomed mark of the Princesse des Ursins, as a sign of her acquaintance with the contents, carried the despatch to the *camerera mayor*. With her usual audacity Madame des Ursins wrote indignant marginal notes, and one of them of a most singular character.

She had an equerry named d'Aubigny, called *un tout petit sire* by St. Simon, who played a sort of nondescript rôle among her attendants. He had immense share in her confidence, and it was complained that he was the only man who slept in the palace. Indeed, his apartment formed part of the suite of the Princess's own. In the despatch of the Abbé d'Estrées, mention was made of d'Aubigny, and it was stated that people had no doubt that he was married to her. "*Oh, pour mariée, non!*" wrote the Princess in all the indignation of a *grande dame*, as a marginal note.

The opening of this despatch and the marginal note came to the knowledge of Louis XIV., and his anger was great. However, by the aid of her friends at Versailles, the *Camerera* got over this difficulty, and the Abbé d'Estrées in disgust followed his uncle, and gave up his post. But, nevertheless, shortly afterwards another subject of disagreement came between the Court of Versailles and that of Madrid, on the subject of the command of the war in Spain. The King insisted that Philip V. should shake off what he styled the shameful sloth of the palace, and put himself at the head of his armies. Madame des Ursins and the Queen both, however, set themselves against this advice of Louis XIV. The opposition of Madame des Ursins was not unknown at the Court of Versailles. The Cardinal d'Estrées, eager for revenge, beset all her friends with his representations, till, one by one, Torey, Madame de Noailles (whose son-in-law, the Duc de Gram-

mont, arrived at the Embassy of Madrid), and even Madame de Maintenon, ceased to defend her, and she was recalled.

She was recalled, however, only to be sent back again with greater authority than before. Her disgrace was the way to her triumph. In fact, the affairs of Spain during her absence went from bad to worse. The King, after a brief effort at independence, had made his incapacity more apparent. Montellano, with the *grandees* in the *Despacho*, attempted to absorb the whole sovereign power, to oppose every French project, to prevent the formation of an army, and to prevent the King from being master of it. The great defeat of Blenheim came to throw into still greater disfavor the French alliance in Spain; and, to add to the difficulties of Louis XIV., the chief *grandees* began to be of opinion that the only hope of saving the integrity of the Spanish monarchy was to range Spain on the side of the allies, and against the monarch of France. The Queen of Spain, aware of the danger of their position, wrote day by day the most urgent letters of appeal to Madame de Maintenon for the return of her *camerera mayor*.

Louis XIV. consented at last to send back the indispensable *camerera mayor*, but he did so with great repugnance. He who in early life had engaged with Colbert to deliver himself of any woman in twenty-four hours, as soon as he should be told that she influenced his politics, felt contempt and pity for his weak-minded grandson, who was incapable of the slightest initiative, and was a mere cypher without his wife, who herself was nothing without her lady of the palace. Of his intense desire to get rid of Madame des Ursins altogether, and to efface the traces of her influence in Spain, evidence is extant, in the pseudonymous correspondence which he carried on with his ambassador, the Duke of Grammont; yet he became convinced at last that Madame des Ursins was the only person capable of reconciling the discordant elements of which the Council of Madrid was composed.

Having resolved, therefore, that she should return to Spain, his policy naturally was that she should return with all the consideration and *prestige* which royal favor could bestow upon her; and Louis XIV. accordingly went through

his part with a grand resignation which concealed all the sadness which must have been at the bottom of his heart.

A courier was accordingly despatched to Toulouse, where Madame des Ursins was residing, with permission for her to appear at Versailles.

"Nothing," says St. Simon, "could equal the air of triumph which Madame des Ursins assumed at Marly (at a ball), or the attention of the King to distinguish her and do her honor and everything; it was as if she were a small Queen of England in the very freshness of arrival. Nothing could equal the majestic fashion with which everything was received by the Princess. She bore herself with a mixture of grace and politeness long since effaced, and which recalled the memory of the oldest times of the queen-mother.

"The King was admirable in giving a value to everything, and in making valuable what in itself had no value at all. Madame de Maintenon and Madame la Duchesse de Bourgogne were only occupied with Madame des Ursins, who made more remarkable the prodigious flight she had taken by a little dog which she carried under her arm than by any political distinction. No one could recover from the surprise at such a familiarity which Madame la Duchesse de Bourgogne herself would not have permitted herself—trifles have such importance when they are beyond example. *The King at the end of one of these balls caressed the little spaniel!!!* which was another subject of surprise for the spectators. Since that time Madame des Ursins was never to be seen at the Chateau of Marly without this little spaniel under the arm, which became for her the last mark of favor and distinction."

Madame des Ursins not only went back to Spain, but she went back with conditions drawn up by her in the form of a regular treaty, and accepted by the King; and she, moreover, named herself a new French ambassador, Amelot, in the place of the Duc de Grammont, and Orry, whose talents as an administrator and financier of the school of Colbert had obtained for him a previous mission to Spain, was also said to give her assistance.

The nine years, from 1705 to 1714, which followed, were the most important of Madame des Ursins's existence. Had it not been for this French *camerera mayor*, Louis XIV. would have abandoned his grandson to the mercy of the Allies. Spain, under the direction of Madame des Ursins, rose from the lowest state of prostration and abasement. The

country which formed one of the main causes of the ruin of Napoleon, became, and through her alone for a time, the single theatre where the glory of Louis XIV. was not overwhelmed with disaster. Almanza and Villaviciosa came in to balance the evil fortune of Ramillies, Oudenarde, and Malplaquet. The victory of Almanza in 1707, which consecrated by a brilliant victory the regal power of Philip V. in Spain, had been in great part prepared by the careful administration and great reforms of the Princesse des Ursins. Four years before Almanza, Amelot wrote in one of his despatches, that Philip V. had neither troops, nor arms, nor artillery; his domestics were not paid, and his body-guard, dying of hunger, went to eat the scraps which were distributed at the gates of the convents. Even the previous year, the failure of the siege of Barcelona, then in the hands of the Allies, Philip V., with his Queen at Burgos, and Madrid occupied by his rival, was as little the King of Spain as was Charles VII. of France at Bourges. Berwick had declared that all was lost in Estremadura and Castille, and that nothing remained for the King but to fly to the mountains of the north of Spain, to be as near as possible to the frontier of France. Three parts of Spain were in possession of the Austrian prince who claimed the succession of Charles II. The great mass of the *grandees* deserted to the side of the Archduke, who was proclaimed in Madrid under the title of Charles III. Even the Cardinal Portocarrero, the founder of the Bourbon dynasty in Spain, obeyed the dictates of resentment at the disgrace into which he had fallen, embraced openly the cause of the rival of Philip V., and opened the gates of Toledo to his enemies. He illuminated his palace, had the *Te Deum* sung in the cathedral, gave a splendid banquet to the officers of the army of the Allies, at which they drank to the health of Charles III., King of Spain, and gave a public benediction to the standards of the Austrian pretender. But the cause of Philip V. had been embraced by the people in the capital. The populace made use of every hostile device, some of them of unparalleled strangeness, for the destruction and discomfort of his enemies, and peasants in

the country came in bodies to the King supplicating delivery from the yoke of the grandees who overrode them with exactions. The great mass of the people of Spain remained faithful to the adopted heir of their last sovereign. Madame des Ursins took admirable advantage of this popular enthusiasm. By her addresses, by her letters, and by the applications she directed, she obtained voluntary gifts for the support of the army of the King; 8,000 *pistoles* from the province of Burgos, from another province 15,000, and much greater contributions from the richest cities of Andalusia. Money and bread and clothes arrived in abundance at the camp of Berwick, and the king of Spain had a satisfaction long unknown to any monarch in the country, that of having his troops well paid and fed. He was transported with this wonderful good fortune, and immediately wrote a letter of the warmest thanks and acknowledgments for the devotion of the lady who had procured such an unexpected result in the darkest hour of his peril. One of her letters from Burgos to Madame de Maintenon at this time gave a lively idea of the straits to which the royal family was driven, and of the life of Madame des Ursins.

"I will give you the description of my apartment to amuse you. It consists of a single piece, which is not more than twelve feet wide in any direction. A large window, which does not shut, exposed to the south, occupies all one side. A door, very low, serves me for a passage into the chamber of the Queen, and the door leads to a windy passage where I do not venture to go, although two or three lamps are always burning there, for it is so badly paved that I might break my neck. I cannot say the walls are white, for they are very dirty. My travelling-bed, with a camp-stool and a deal table, is the only furniture I have, which last serves me as a writing-table and for eating the remains of the Queen's dinner—for I have neither kitchen nor money to provide me. I laugh at all that."

Nevertheless, after the battle of Almanza, the fortunes of Philip V., temporarily upraised by a brilliant victory, seemed to have fallen lower than before, and the energy of Madame des Ursins alone saved the Spanish monarchy from dismemberment, and Philip from being a realmless monarch.

In 1709, Louis XIV. was so hard pressed by the Allies, and France so exhausted, that the Court of Versailles seriously contemplated the abandonment of his grandson. Philip V. himself prepared to resign himself to his fate. It was then that all the spirit of this extraordinary and intelligent woman, now seventy-four years of age, was aroused. "What, sire!" said she to Philip V., "are you a prince? are you a man—you who treat your royal title so lightly and have feelings weaker than a woman?" Not only did she renew again all her efforts for the recruiting, discipline, and support of the Spanish army, but she threw herself thoroughly into the state of French affairs,—wrote eloquent and indignant letters to Madame de Maintenon, and propounded a scheme for utilizing anew the resources of France and filling afresh the exhausted treasury for the purposes of the war; and when we add to all the political difficulties with which she was daily struggling, the illness of the Queen after confinement of a second son, and upon whom, as *camerera mayor*, she was obliged to be in constant attendance, it must be imagined that more anxieties and cares never fell to the lot of a septuagenarian lady.

This stroke of policy of hers at this period was of surprising audacity, and worthy of the spirit which dictated the letters characterized by Madame de Maintenon as "*lettres à feu et à sang*." The Spanish people were so indignant at what they considered the treachery of the French king in contemplating the abandonment of his grandson, that the old international hatred between the two nations was awakened. The French residents in Madrid were in danger of their lives. In this state of things, Madame des Ursins ventured on the most daring act of her life. She extracted from the king a decree which banished all the French from Spain, and thus threw the new monarchy on the undivided sympathies of the Spanish people. This stroke of policy of Madame des Ursins had the happiest effect in reconciling the grandees of Spain to the Bourbon dynasty. The Princess was carrying on two great struggles at the same time—one against the supporters of the Archduke, and the other against the grandees, who, like all aristocracies,

seized the opportunity, when the monarchy was in this struggling condition, to aggrandize their privileges and pretensions. The Spanish nobility were now ambitious of recovering some of their feudal privileges, which they had lost under Charles V. and Philip II. From the beginning of her administration she had opposed resolutely the pretensions and unveiled the intrigues of some and punished the treachery of others of the *grandees*. Having discovered the high treason of the *amirante* of Castile, she had him prosecuted and condemned to death, which caused the Duke of Medina Celi to exclaim, "People like ourselves ought not to be treated thus!" But the Duke of Medina Celi himself, having conspired with the Duke of Orleans, and having as Minister of Foreign Affairs betrayed a trust reposed in him, was also arrested, and died in a state prison; and the Marquis de Leganez, another great noble, was also sent into captivity to France.

In fact, in almost every matter of internal policy Madame des Ursins followed the example of statesmanship in France, where not only the repression of oligarchical power, but the centralization and amplification of the administration, had been the aim of every French Government from Philip Augustus to Richelieu and Louis XIV. Thus after Almanza she ventured resolutely on a *coup d'état*, which put an end to the administrative and legislative chaos of Spain, where, up to that time, every province had its own *fueros* and *cortes*, and Catalans and Arragonese had been as jealous of Castilians as though they had been of different nations. But this daring lady was not content with having to grapple with the Archduke and his allies, with the great mass of the *grandees*, and with the thousandfold abuses of Spanish administration and justice; she dared to make assault even on the Inquisition, and to establish in Spain for the Spanish Church that independence which the Gallican Church had acquired in France;—a proceeding, however, which was discouraged by Louis XIV., who wrote to his grandson, "Croyez-moi, vous n'êtes pas assez fort pour avoir encore vos libertés gallicanes."

The greatest proof of the excellence of the administration of Madame des
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Ursins was the devotion which the people of Spain showed towards the cause of Philip V., and the final reconciliation of the *grandees* to his government. When the Archduke, after his victory at Saragossa, had opened again the way to Madrid, and Philip V. had again taken his Court to the north to Valladolid, although the fugitive king had given permission to all the inhabitants to remain in the capital, yet all citizens who were able deserted the city for Valladolid. Even shop-keepers and artisans followed the general example; and some poor, and some even infirm, officers of justice made the journey to Valladolid on foot. All houses and shops and workshops were shut up. The capital seemed a desert; and when the allied troops entered the city, and the Archduke Charles went, at the head of two thousand horsemen, to return thanks to *Nuestra-Señora de Atocha*, only some ragged boys, in the hopes of getting a few *maravedis*, cried *Viva el Rey Carlos!*

The *grandees* themselves, in their stately pride, were touched by the enthusiasm of the people, and came over in a body to the king; a change of feeling, manifested by a letter to Louis XIV., signed by all the leading nobles, declaring their fidelity to his grandson, describing the pressing need of his cause for fresh assistance, and asking for French co-operation.

This application was the proposition of the Duke of Medina Sidonia, and was signed by the Dukes de l'Infantado, Popoli, d'Arcos, d'Abrantes, de Bagné, de Veraguas, de Montellano de Bejar, the Condestable of Castile, the Marquises de Almonacid and del Carpio, the Condes de Lernos and Peñaranda, and a crowd of others of the greatest names of Spain; only the great Duke d'Osuna, he who was "no bigger than a rat," always faithful to Philip V., refused to sign, from true motives of Castilian pride: he was haughtily discontented with Louis XIV., that he should have thought of abandoning his grandson and Spain, and said Spain would suffice for the work herself.

The joy of Louis XIV. at this letter was immense. He read it several times, and agreed to send to the assistance of his grandson 14,000 men. The great

Vendome, the grandson of Henri IV. and Gabrielle d'Estrées, was sent as general; and, on the 10th of December, 1710, the united Spanish and French army, with Vendome as general-in-chief, gained the great victory of Villaviciosa, which established the Bourbon dynasty securely. The nobles of Spain, fired with their new fidelity, and jealous of distinction under the eyes of the famous French general, fought with brilliant valor, and thousands of standards were taken, of which the French marshal made a couch for the first Bourbon king of Spain on the night of the victory. After ten years of struggle and persecution, the standard of the *fleur-de-lis* was firmly planted in Spain.

Madame des Ursins, to whom so large a portion of that success must be attributed, was herself already a grandee of Spain. She now received, in company with the Duke de Vendome, the title of Her Highness, and the order of the Golden Fleece, with a promise of a sovereign principality in the Low Countries.

In the year 1711 everything turned to the advantage of Philip V.: the Archduke, his rival, was elected Emperor. His allies were not inclined to confer upon Austria that aggrandizement which they had refused to France, and to create another empire like that of Charles V.; they consequently refused to make further efforts in his behalf. Marlborough, whose scientific blows had nearly laid helpless the French monarchy, fell into disgrace, and was recalled; and in 1712, the French, under Villars, were enabled to win the battle of Denain, and to lay down the basis of the Peace of Utrecht. Madame des Ursins, however, though her great work was achieved, still remained in Spain, directing reforms, administrative and financial, of the Colbert character, with the aid of the industrious Orry, and fighting with the Inquisition. Nevertheless the Inquisition was still too strong for her; for, says Llorente, 1,574 persons were burnt in the reign of Philip V., and 11,750 subjected to penitential punishment. But the power of the Church in Spain was enormous. "The abuses of the clergy," wrote Macanaz, a jurist employed by Madame des Ursins to fight her battles, and made by her a member of the *Despacho*, "have weakened the royal power. The eccle-

siastic immunities only serve to favor usurpation and disorder. The churches are become the refuges of criminals, and the right of asylum has been extended from these sacred edifices to adjoining houses, to shops, and whole neighboring quarters. The ecclesiastics, the monks and the nuns, encroach yearly on the rights of the King by continual acquisition of secular property, which forthwith becomes exempt from taxation. The clergy have in the State more subjects than the King. The ambition of some ministers has tolerated these abuses to give them the opportunity of enriching their families with the goods of the Church." Dangerous words these in the days of the Inquisition, when its name made men's blood still run cold with terror, and its power was sufficient to lodge the greatest grandee in its dungeons. The documents in which it was spoken of were consequently kept profoundly secret; and the very Council of Castile first resolved to adopt the precaution, in their proceedings against the Inquisition, of *voting by ballot*. The Inquisitors, it was argued, could not seize on the whole Council at once; yet even then the Council was afraid. The Inquisitors, working on the religious prejudices of the people, got up a popular commotion at Madrid; and Philip V. himself, and all his Council, were too terrified at the awful power they were confronting to follow the energetic advice of Madame des Ursins and Orry, and abolish it. So the Inquisition still remained unshorn of much of its terrible power; yet the struggle of Madame des Ursins with it was not wholly fruitless. She had found a vigorous and firm ally in England, who, since the Peace of Utrecht, had maintained an ambassador in Madrid; and it was decreed that the palace of the English ambassador, and every English ship in a Spanish harbor, should be exempt from the power of the Inquisition. The British flag and the British nationality, owing to Madame des Ursins, alone braved the Inquisition in the soil of Spain, and offered protection to every victim.

But the reign, as it may be called, of the princess was drawing to an end. Her young protectress and friend, the Queen of Spain, who joined to the affection of a daughter the deepest respect

for her great intelligence, died at the age of twenty-five in 1714. The heroic Marie Louise, who had given a soul to her weak-minded husband—who had been a wanderer with him in his rapid and forced flight amidst the rugged mountains of the Asturias, where she had often to be content with the bed and fare of a peasant and a mountaineer, worn out with ten years of difficulty, and sometimes of privation, during which she was subject to the moral distress of seeing her own father, the faithless Duke of Savoy, ranged among her enemies—was no more, and Madame des Ursins was left alone with Philip V.

The position of Madame des Ursins was now necessarily extremely delicate; and in the ten months which intervened between the death of Marie Louise and the second final disgrace of the Princess, her conduct was not of a nature to disarm jealousy and to avert the venomous force of scandal. She should have exercised greater precaution, since she well knew that she was detested by the priests, and that the *grandees* and ministers of the Spanish Court were not attached to her, but only tolerated the ascendancy of this audacious French old lady, who was satisfied with nothing in Spain, who carried her reforming mania into everything, and had even violated the most inviolable rules of Court etiquette. Louis XIV., who detested all meddling of women in politics, moreover, had also only tolerated her as being for a time indispensable, and had been highly indignant that Philip V., out of gratitude to the Princess, had supported, with the allies, her claims to a sovereign principality in Flanders, in return for her services, with such pertinacity, that he delayed the signing of the Peace of Utrecht. Madame des Ursins, however, in all the pride of her conscious superiority, continued governing Spain with a high hand. She exiled one of her chief ministers from motives of personal discontent—she imprisoned two of the greatest *grandees*—broke with all whom she considered her enemies, or even lukewarm friends—set the Duke of Berwick, who was sent to a military command in Spain, at defiance—and treated even Madame de Maintenon with haughtiness.

Being now close upon eighty, and

Philip V. only thirty-two, she may have imagined scandal could make nothing of their relations, and she kept the King in leading-strings, and hardly let him out of her sight. At the palace of the Duke of Medina Celi, to which she transferred the King from the Buen Retiro after the death of his queen, she had a corridor made between the monarch's apartments and her own. This corridor gave rise to immense scandal in Madrid. Yet Madame des Ursins, it must be remembered, was not only chief political adviser of the King, but the governess of his children, who lived in her apartments; and the constant society of the young princes was the chief consolation of Philip V. for the loss of Marie Louise.

Nevertheless the evil tongues of Madrid made much of the corridor. The Jesuit confessor of Philip one day during an interview confided to him that, both in France and Spain, people thought he meant to marry her. "*Moi l'épouser!*" replied the King; "*oh! pour cela, non!*" Fatigued at last, however, he said to Madame des Ursins, "*Cherchez-moi une femme; nos têtes-à-têtes scandalisent le peuple.*"

There was at this time at Madrid, in the service of the legation of the Duke of Parma, an intriguing, restless, ambitious Italian priest, Alberoni by name, who had been brought originally to Spain by the Duke of Vendôme. He was himself a Parmesan by birth, and the son of a gardener. The great rôle which Madame des Ursins played in Spanish affairs stimulated his ambition, and he was destined to outdo her and to take her place. He saw the part which a foreigner might play in Spanish politics. He allied himself at first with the Grand Inquisitor, the Cardinal del Gêdice, and offered his services secretly to defend the Inquisition against the assaults of the *camerera mayor*. Then the wily Italian broke apparently with Del Gêdice, and paid his court to Madame des Ursins.

The Princess of Parma happened to be among the number of princesses who were considered as eligible for marriage with the Spanish king. She was, as her subsequent history proved, one of the most intractable, imperious, and domineering of ladies—a royal virago. Madame des Ursins was naturally anxious that the new Queen should be of a pre-

cisely opposite character. Alberoni, from being at the Court of Parma, was acquainted with the character of the princess, and on being personally consulted by Madame des Ursins as to the character of the Princess of Parma, assured her that the princess was one of the most docile of creatures, and that she would have no difficulty in establishing an empire as complete over her as she had held over the late Queen of Spain.

Madame des Ursins was ravished at this false account of the Princess of Parma, and despatched Alberoni forthwith to negotiate the marriage. Some expressions, however, of the satisfaction of her enemies at the step she had taken reached her. After further inquiry she became aware that Alberoni had deceived her, and she endeavored to stop the marriage by sending a courier. The courier arrived at Parma a day or two before the marriage. The Court of Parma got wind of his errand, and had him seized and threatened with death if he divulged a word of his mission. Madame des Ursins set forth from Madrid to meet the new queen as *camerera mayor*. One of the last acts of this remarkable woman, before she went to encounter the fiery young princess who was to annihilate her political existence, was the establishment of an academy at Madrid, framed after the model of the *Académie Française*. She had some warnings of the fate which awaited her; but she despised all. Everything, however, had been arranged for her overthrow. The King himself had, with consummate cowardice and treachery, and with palpitating uxoriousness, sent his wife full powers. Everything had been arranged by a conspiracy of the King and his bride, and the Inquisition, and the old aristocracy of Spain, for dismissing into instantaneous exile an aged lady who had labored unceasingly for fifteen years in the desperate cause of the Spanish monarchy. The Queen-Dowager, the widow of Charles II., an aunt of Elizabeth Farnese, had an interview with the new queen at Saint-Jean-Pied-de-Port, as she approached Spain. The Queen-Dowager was not only a personal enemy of Madame des Ursins, but she had been thoroughly tutored by the Grand Inquisitor, Del Guidice, who was residing, like herself, at Bayonne, as to

the advice she should tender to the Queen. *Alberoni saw the latter alone at Pampehuna*, and with consummate art roused the fury of the young virago to an unnecessary pitch of exasperation.

Madame des Ursins, as *camerera mayor*, had organized the Queen's household. It was arranged that the royal marriage should take place at Guadalupe. She had a last interview alone with the King at that place, on the 22d of December, and advanced to meet the bride at Quadraque, a small village seven leagues farther on. The Princess des Ursins had not the slightest notion of what was awaiting her—even the cruel brow and scorn of the vixenish young Elizabeth Farnese as she received her obeisance were insufficient to prepare her for what was to come. There are various accounts of what took place; but the most trustworthy report relates that when left alone with Elizabeth Farnese, the latter burst forth in a torrent of reproach on the whole of her administration, accused her of the death or exile of all the great grandees who had been her enemies, and finally, lashing herself into fury, screamed for Don Antonio Amazaga, the officer of the body-guard, and told him "to put that mad woman out of her room"—to arrest her, and not to leave her till he had put her into a carriage. She then called for the groom of the royal equipages, and ordered him to get ready a carriage and to take the Princess des Ursins off at once to Bayonne by Burgos. Amazaga represented that the King of Spain alone had the power to give such orders. She demanded with haughtiness if he had not orders from the King to obey her in everything; and Philip had indeed had the ingratitude and cowardice to give such orders, knowing full well what was intended.

A strange but a veritable object for commiseration was now the Princess des Ursins. It was night, the eve but one before Christmas, and bitterly cold as it is only cold in central Spain and Siberia when the earth is covered with ice and snow. The driver of the Princess lost a hand with frost-bite before morning. Nevertheless Madame des Ursins, in her eightieth year, with her gray hairs, in her grand Court dress, was bundled into a carriage and started

without a change of raiment, without being allowed to alter her cumbersome head-dress, without money, and without a single means of protection against the cold. Never was disgrace in the world more unforeseen, and hardly ever more undeserved. What must not the towering pride of the high-born lady, with her quick and vast intelligence, have suffered in that long and terrible Siberian ride, deprived as she was of every necessary! This was the end of the service of kings,—to be rolled off at a minute's notice through a night of arctic severity, seated between two body-guards, without a mantle to wrap round her, and without a vestige of food or a single restorative. What emotions must have passed through the brain of this extraordinary woman during that bitter night! We may imagine, but cannot know; for she never spoke a word to either of her guards till the morning, when they stopped to refresh the horses. And so across Spain—across desert, hotelless Spain, where at that time neither bed nor food was to be had beyond such as were fit for muleteers—travelled the Princess. Her resignation was astonishing; her guards remembered it with admiration to their dying days. This dreadful journey lasted three weeks—three weeks of every kind of privation—till she reached Saint-Jean-de-Luz, on the 14th of January; and yet not a tear, not a single regret, not a single complaint at all the hardships and suffering she underwent, or at the ingratitude and rigor of the King or his new Queen, escaped her.

Such was her exit from Spain, which she had entered ten years before in triumph and in the full blaze of summer, when every town on the road from Madrid to Burgos was full of spectators assembled from the capital, and indeed from all parts of the country, to

clap their hands, to wave *sombreros*, and to shout her welcome back to Spain,—when the King and Queen themselves advanced two leagues from the capital to meet her and embrace her with affection.

What need to relate the subsequent neglect she met with from the moribund Louis XIV. and Madame de Maintenon on her arrival in France? She who had lived in royal state in Madrid, with guards in her antechamber and about her carriage, was reduced at Versailles, whither she went to have a solitary audience with the King, to lodge with the wife of a clerk of the office of foreign affairs.

She finally retired to Rome, the congenial retreat of fallen greatness, where she received immense respect from the Pope and cardinals; where, too, she received some tokens of consideration from Philip V. as atonement for the past. There she lived in intimacy with the exiled and discredited race of Stuart; and there ultimately she came face to face with both Del Guidice and Alberoni, the authors of her disgrace, both vagrant and in exile; and there she died, with her lucid intelligence vigorous and active, in 1722, in her eighty-seventh year.

The pages of St. Simon, where he describes his interviews with Madame des Ursins, are among the most curious of his Memoirs; and although not personally inclined towards her, on account of his relations with her enemy the Regent, who had been guilty of treasonable plots against the throne of Philip V., yet he does full justice to her courage, her powers of application, and her wonderful intelligence; and declared that "her life deserved to be written, since it would hold a place among the most curious portions of history of the time in which she lived."

British Quarterly Review.*

THE PLACE WHERE LIGHT DWELLETH.

THE central idea of modern science is force. Of this force it is supposed there

is a certain quantity in the universe

* *Le Soleil*. Par AMÉDÉE GUILLEMIN. Paris: Hachette et Cie. 1869.

Researches on Solar Physics. By WARREN DE LA RUE, Esq., Ph D, F.R.S., F.R.A.S., BALFOUR

STEWART, Esq., M.A., F.R.S., Superintendent of the Kew Observatory, and BENJAMIN LOEWY, Esq., Observer. First, Second, and Third Series. London: Taylor and Francis. 1865-9. (Printed for private circulation.)

which can neither be physically lessened nor increased. It may be passive, like the slumbering electricity in an unexcited body, in which case it is called potential energy; or it may wake up into resistless activity, like the same element in an exploding thunderbolt, and then it is known (perhaps felt) as actual or dynamic energy. All the forms of force are said to be related, and all admit of mutual conversion; but whatever character they assume, and whether kept in daily circulation or buried in some subterranean storehouse for ages, the sum-total of power is alleged to remain precisely and unchangeably the same. It is a something which He only who created can diminish or destroy.

For us, in this planet, the sun is the chief fountain of force. The mechanical labor alone which our luminary performs in the world is prodigious, and his agency in some of the commonest transactions is popularly unsuspected. Ask a rustic miller what turns his watermill, and he would regard it as a pure mockery were he told that it was the sun. It is certainly the stream which drives the wheel, and as certainly it is the earth's gravity which draws the fluid down to the lowest level it can find. But what lifted that fluid to the heights from which it has so noisily descended? Clearly the bright but distant orb, without which there would be no rain to fill the channel and no moisture to feed the springs.

And what works that windmill whose sails are circling so merrily on the neighboring hill? There again we have the same great agent employed—stronger than the strongest giant, meeker than the humblest turnspit; for it is he who sets the air in motion, and refreshes the earth with zephyrs, or purifies it with the storm and tempest. But surely, it might be said, the horse which drags yonder heavy load, and the locomotive which transports yonder heavier train, accomplish their tasks, the one by virtue of its muscles, the other by virtue of its steam, and this without the slightest help from your puissant sun? Do they? Not a morsel of duty could they perform had he not given them the means! For without him there could have been no vegetable life to supply the animal with food, or to replenish its iron substitute with fuel. It is to the sun, too, that we

ourselves owe the power of performing the simplest physical acts, for it is he who is our helper if we shake a friend by the hand, and our accomplice if we knock an adversary down. In fact, trace matters back sufficiently far—a few steps will generally be enough—and we shall discover that all mechanical activity must, in some way or other, be ascribed to the influence or intervention of this *ministro maggior della natura*, as Dante calls the sun. The very tides which appear to be so emphatically under the sway of the moon are no exceptions to this law; for how could the seas respond to the lunar solicitations if they were converted into solid masses of ice, as they would infallibly be by the extinction of his rays? * Considering, indeed, how all animal and vegetable existence is dependent upon the solar emanations, Professor Tyndall is abundantly justified in his assertion that “we are not only in a poetical sense, but in a mechanical sense, the children of the sun.”

From this orb there stream down upon us three distinct forms of influence—the luminous, the calorific, the chemical. How light develops force, how it sets bodies to work at its bidding, may be seen in its action on plants. A laurel leaf introduced into a receiver of carbonic acid and hydrogen, as Boussingault shows, produces no effect whilst kept in perfect darkness; take it into sunshine, and that leaf becomes inspired with energy; it tears the elements of the acid asunder, appropriates the carbon to its use, and is prepared to deliver up the oxygen for the general purposes of creation. So long as a vegetable is retained in profound obscurity its leaves appear to be asleep; they can only exhale—we had almost said dream out—carbonic acid; and it is not until placed under the stimulus of light that they become sensitive, and wake up to do their appointed work.

How the chemical rays excite molecular action may be briefly indicated by referring to their effect upon a mixture

* Perhaps volcanic eruptions, earthquakes, and the energies derived from the internal heat of the globe may seem to be purely domestic transactions; but it is impossible to say how far that very heat may not have been a legacy from the sun, or our share of the great solar inheritance when the earth entered upon its planetary career.

of chlorine and hydrogen. Kept for a time in darkness, these two gases, though eager to combine and form hydrochloric acid, remain silent and insulated; but turn on a current of sunshine, and in a moment or two an explosion ensues, and the union is effected with such violence that the vessel may be shattered to fragments. By way of estimating the sun's chemical power, Bunsen and Roscoe calculated that if our earth were surrounded by an atmosphere of these two gases, to the depth of about thirty-eight yards, the letting in of its light fully for a single minute would convert the whole into an ocean of hydrochloric acid.

But it is the sun's heat which will afford us the readiest and most familiar illustrations of his force. His issue of caloric has been variously represented. According to Sir J. Herschel, it would melt a pillar of ice 1,590 square miles at its base and 194,626 miles in height in one second of time. According to Pouillet, it would liquefy a shell of ice ten and a half miles thick in a single day, though it encompassed the entire orb. According to Professor Tyndall, it is equal to the heat which would be yielded by a seam of coal sixteen and a half miles in depth were it fired and reduced to ashes. Large figures are generally very bewildering, and when M. Guillemin* expresses the sun's deliveries of caloric by a row of twenty-five ciphers preceded by 4,847, the effect upon the imagination is benumbing rather than exciting.

But the matter may be put in a more simple and accessible form. Calculating the caloric yielded by each square foot of the sun's surface every hour, as equivalent to that which would be given out by the combustion of 1,500 lbs. of coal, this would accomplish the work of upwards of 7,000 horses. There is something overpowering in this conception when we consider that it applies to the entire superficies of an enormous globe of more than 880,000 miles in diameter,

and not to a few selected spots. We may have here and there on our own planet steam engines doing the work of innumerable quadrupeds, but the idea of several thousands clustered—concentrated, we may say—on each square foot of the sun's area, and exerting their energies incessantly, is one which we cannot compass with much sense of success.

Let us, however, transfer the question of solar power to the surface of the earth. Our globe, of course, intercepts but a fractional part of these burning emanations—only about $\frac{1}{215,000,000}$ th of the whole, according to Herschel. But, relatively small, they are intrinsically enormous, for M. Guillemin observes that the quantity poured upon a single hectare of ground (2.47 acres) develops, under a thousand various forms, as much force as is equivalent to the continued labor of 4,163 horses. The vast amount of work our luminary could, therefore, execute as a mechanical agent by means of his rays, even in the diffuse condition in which they reach this planet, has not failed to attract the attention of curious inquirers. Indeed, we might say that the waste of valuable sunshine which might do the duty of all the steam engines in the world, has excited the displeasure (wrath might be a better word) of more than one scientific economist. There are people who will always be indignant to think that Niagara cannot be employed to turn mills for grinding our corn, and Vesuvius converted into a forge to melt metal on the most stupendous scale. We plead guilty to a touch of the same temper. But, without indulging in philosophical covetousness, is it not distressing to know that the beams which play so unprofitably, in some respects, on many parts of our earth, might, if properly impounded and harnessed to cunningly-constructed machines, be compelled to serve mankind in a very useful and lucrative capacity?

So, at least, thinks Monsieur Mouchot.

On a fine day, at Paris, it was found that the sun's rays, playing upon a surface of one square metre (1.196 yards) communicated as much heat every minute as would suffice to raise at least one litre (1.76 pints) of ice-cold water to the boiling point. In other words, says our Frenchman, its effect was nearly equal to the theoretical duty of a single

* M. Guillemin's work on the sun is one of those agreeable productions which take off all stiffness from scientific topics, and put matters in so popular a form that no reader need wrinkle his brows in the vain effort to understand what the writer means, or what the facts imply. It is copiously illustrated, and is inspired with French vivacity from first to last. (Published by Scribner & Co., New York.)

horse-power steam engine. There are places, however, on our globe where the sky is clearer, the soil more arid, and where, consequently, the Lord of Day is known to stalk in burning splendor. Could not some of this radiance be captured by means of what M. Mouchot calls solar receivers? He announces that he has taken some practical steps towards the solution of this question. So far back as 1861 he showed the possibility of working a hot air engine by the instrumentality of the sun's rays. Subsequently, having ascertained that he could generate seventeen litres of vapor in a minute by the use of a silver reflector, he attempted to drive a small steam-engine by the agency of arrested sunshine. In 1866 he succeeded. Since, however, his experiments were made upon a restricted scale, this ingenious Frenchman recommends that they should be repeated in tropical countries, and with receivers of more magnificent dimensions. In his enthusiasm he even indulges the hope that some day the invention will be transferred to the deserts, where industry will settle down, and establish important works for the sake of the superior sunshine which those glowing tracts afford. Who will not sympathize with M. Mouchot on learning that, according to his experiments, it would be practicable to collect, in an inexpensive way, fully three-fifths of the solar heat which falls upon our earth? Is it not a matter for many groans, that whilst the sum of the sun's influence upon our planet has been computed as equivalent to the labor of 217,316,000,000,000 horses toiling day and night, not a single patent, so far as we know, has been taken out for an engine to be directly worked by sunbeams. Ours is certainly a wasteful world. A large portion of the warmth we might extract from our coal goes idly up our chimneys; and it seems that the cheaper caloric which is sent us from our luminary is allowed to flow back into space without driving (by its immediate action) so much as a coffee-mill, or performing any artificial mechanical duty for mankind.

Whence, however, proceeds the heat which the sun thus prodigally emits? In our own planet, combustion—that is to say, chemical combination—is the chief source of native caloric. But if a simi-

lar process were in progress on the central orb, it must sooner or later come to a conclusion; and though we cannot read the history of the sun at large, yet it is in our power to grope backwards, and judge whether such an operation can have been in force during his registered existence. Now, Professor W. Thomson says that the "chemical theory is quite insufficient, because the most energetic chemical action we know, taking place between substances amounting to the whole sun's mass, would only generate about 3,000 years' heat." If, therefore, our luminary had been dependent upon his own treasures of inflammable material, he must have been a dead, dark mass when Adam left Paradise, and could have had no visible existence when Joshua is reported to have held him spell-bound for a whole day upon Gibeon. And during those 3,000 years his energies must have varied not only sensibly, but seriously; for, however well "coaled" the orb might be when his career as the giver of light commenced, yet, self-sustained, it is impossible to believe that he could have preserved the same steady glow throughout the whole period of human experience. Professor Tyndall computes that if the sun had been a great block of coal, supplied with as much oxygen as would enable him to uphold the existing rate of radiation, the whole of his substance would have been consumed in 5,000 years. Kindled at the birth of Adam, his very embers would now have ceased to gleam.

We must, therefore, have recourse to some more efficient theory than that of simple combustion. That the luminary shines by virtue of some mysterious property of his own is as inadmissible as the idea of those perpetual lamps, fed by their own unrenowned fuel, which are said to have been found in ancient sepulchres, but of which no specimen is to be seen in any modern cemetery or antiquarian cabinet. Perhaps the most inviting hypothesis is the meteoric.

There is manifestly a prodigious quantity of spare matter in the universe. We will not call it waste matter—the refuse left by the Creator when the work of world-making was completed, as Dr. Whewell suggested—but round the sun, and probably round the earth, and pos-

sibly round each planet,* small bodies are continually revolving. These are, of course, too diminutive to be ranked as satellites; but occasionally some of them are seen flashing through the air, whilst others, though more rarely, are overpowered by the earth's gravity and dragged to the ground. Looking up at the sky on any clear evening, it would be strange if the eye did not catch a glance of some meteor suddenly kindled and as suddenly extinguished. On certain nights in August and November—classical nights for the astronomers—thousands of these splendid objects have been counted. It was computed, from observations at Boston (U. S.), that on one occasion not less than 240,000 swept through the atmosphere in the course of nine hours; and there are few persons in this country who will not remember the magnificent display of 1866, when our planet seemed to be undergoing bombardment from some rival orb, and the shells fell in showers through the air—harmlessly, thank Heaven!—for if the skyey artillery had been pointed direct at our globe, instead of hurling its missiles over our heads, what a battered appearance the poor earth might have presented when the combat was concluded and the foe had retired!

Now, when one of these vagrant masses alights upon our globe it is found to be in so highly heated a condition that it cannot be handled; or should it remain undiscovered for months or years, we know from the signs of superficial fusion, though its substance consists of stone or iron, that a vast quantity of caloric must have been developed during its transit through the air. Mr. Symonds, who witnessed the fall of a mass of meteoric iron in 1844, in a pass near the river Mocerita, in South America, went immediately to the spot, but could not approach nearer than ten or twelve yards on account of the heat; the soil was bubbling up around it for the same reason, and the *pedra de ferro*, so far as it was not imbedded in the ground, was glowing intensely.

This caloric cannot come, to any extent at least, from combustion, for we might as well expect a cannon-ball to burst into a blaze as a lump of meteoric

iron; nor can it have been imported from abroad by the body itself, as might have been the case if *aérolites* had been ejected from lunar volcanoes in conformity with Laplace's view. Obviously the elevated temperature of these objects is due to the friction encountered in the atmosphere, and to the concussion sustained by the fall. Can we doubt, then, that the impact of such masses, showered into the sun by millions—all their arrested motion converted into heat—would feed the solar furnace to some notable extent?

Nor will it be deemed a fact without significance that the elements discovered in the sun are correspondent in character with those discovered in meteoric stones. In other words, on applying the spectroscope to the solar atmosphere no substance can be detected there which may not be found in the lumps of fuel dropped by the way, and left with us as if for the very purpose of analysis. The singular prominence of the iron lines in the spectrum cannot fail to prove suggestive when we remember that the same metal forms the chief constituent of many of the masses which have fallen from our sky, though, as M. Meunier says, it is more characteristic of ancient than of modern descents. Nickel, cobalt, copper, zinc, sodium, potassium, calcium, aluminium, hydrogen, and other elements which have already revealed themselves in the sun, are common components of these captured rambles.

It is true that meteorites exhibit still more numerous points of concurrence with the materials of our globe, for about thirty of our elementary bodies have been traced in them on the one hand, whilst, on the other, no purely foreign substance has yet been detected; but the discoveries in the solar world are by no means completed, and the community of matter which has recently been established suggests that there may have been in ancient days, as there may be in future times, something more than a casual connection between the wandering masses of space and the great orb whose gravity governs the whole system.

Let it be observed, however, in reference to this theory, that it does not involve the idea of combustion in the ordinary sense. It is not coal, or coke, or other inflammable material which is sup-

* Saturn's rings may be thus constituted.

posed to be carted off to the sun. The meteors produce heat chiefly by their concussion. Doubtless, there are many persons to whom this will appear a very unsatisfactory source of caloric. A smith may hammer a piece of iron till it becomes red-hot, but how many Cyclops would be required to keep a whole anvil glowing from day to day? Yet, if we take a few calculations as proximately correct, it will be seen what prodigious results may arise from the simple arrest of motion. It was computed by Mayer, the great patron of the theory, that a cosmical fragment hurling itself upon the central orb at a speed of from 445,750 to 630,400 metres per second, would produce from 4,600 to 9,200 times more heat by its simple shock than a similar quantity of coal would by its combustion. One of our eminent physicists asserts, that if the earth were suddenly halted in its course, and allowed to descend by its gravity to the sun, the caloric generated by the blow would be equal to that developed by the combustion of 5,600 worlds of solid carbon. Professor W. Thomson estimated the effect which most of the planets would produce if they were similarly flung upon the parent orb. Whilst the shock occasioned by the precipitation of our earth in a direct line would of itself maintain the sun's present issues of heat for nearly 100 years, Mars, by his concussion, would afford a supply for about twelve and three-quarter years. Little Mercury, short as is the distance he would tumble, would represent something more than a few scuttles full of fuel cast upon the central fire, for he would be able to keep it alive for about six and a half years. If Saturn, though light as cork, were to "shoot madly" from his sphere, the terrible momentum he would acquire during his descent would contribute 9,650 years of heat; whilst Jupiter, with his heavier mass, would charge the solar furnace with caloric to the extent of its capacity for upwards of 322 centuries. Thus the eight planets of our system (to say nothing of their satellites, or of the mob of asteroids) would, if perpendicularly projected upon the sun, engender heat sufficient to enable it to preserve its present status amongst the stars for nearly fifty thousand years.

But is there adequate foundation for

this hypothesis? It is a captivating speculation, for it has the merit of pointing out an accessible supply of fuel (using that word in its scientific, and not in its conventional sense), and at the same time of converting the very lumber of creation, as it might be excusably deemed, into the most useful and important item in the cosmical economy. The theory is one also which sweeps shoals of comets into its net, and of these bodies, as Kepler observed, there are more in space than there are fishes in the sea. "Alle diese Massen," says Mayer, "stürzen mit einem heftigen Stosse in ihr gemeinsames Grab." It provides also a kind of self-acting machinery, by which this fuel is brought to the sun's doors, and flung into the flames without any other agency—we had almost said without any other "stoker"—than gravity itself. Seeing how necessary it is for the planetary household that the solar caloric should be carefully maintained, could a more valuable function be assigned to such matter than that of keeping up the great focal fires, especially if it be the wreck of shattered globes, or the sweepings of the system which might otherwise have been consigned to the dust-bin of creation, or allowed to litter the heavens in revolving heaps?

Fascinating, however, as this theory may be, it is right to remember that it is looked upon by many as little more than a scientific castle in the air. There is no proof that meteors are shot down upon the sun in such profusion, and with such wonderful regularity, as to keep the great central furnace in "full blast." Many points of difficulty will, of course, arise. If, for example, our luminary is thus incessantly pelted, he must be constantly augmenting in substance; and in a system so delicately adjusted as ours, will not this continual addition of matter disturb the balance of forces, and eventually lead to the destruction of the whole? To this it is replied that the increase must be so slight in comparison with the solar mass, that no change measurable by human instruments, or perceptible by human organs, can possibly have ensued; and further, since the sun's current expenditure of radiant force is assumed to be balanced by his income of fuel, there must be compensating principles at work which will keep his

accounts "on the square." Just in proportion, for example, as his heat is dissipated, so his volume should contract, and it is not an unpardonable supposition, when dealing with an agent of which we know so little as gravity, that even this mystic power may be affected by conditions too subtle or too remote for our present comprehension.

The existence of the zodiacal light has sometimes been quoted in corroboration of the theory. What is this luminous phantom, shaped like a cone, which is best seen on the horizon after the sun, when he sets in the spring of the year, or before him when he rises in the autumn? Part of his atmosphere, it was commonly said. Or, might it not consist of cometary and meteoric material which, growing denser as the distance from the focus of gravity decreased, became visible as a solar appendage? To use the eloquent words of Professor Tyndall, "the entire mass constituting the zodiacal light must be constantly approaching, and incessantly raining its substance upon the sun." Not long ago, however, the spectroscope was brought to bear upon this magnificent apparition, and Angström found that instead of exhibiting faint bands of color, as it should if it shone by reflected solar light, it yielded only one bright line, and that the very line which figures most conspicuously in the spectrum of our own aurora borealis. What renders this coincidence more striking is, that the bright streak in question does not appear to answer to any ascertained spectral element. And to add to the interest of the discovery, similar indications have been obtained from the corona of the sun during a late total eclipse, so that, as Mr. Proctor has recently pointed out, a curious relationship is found to exist between the zodiacal display, the solar crown, the terrestrial streamers, and probably the tails of comets. From this fact alone, however, we are scarcely entitled to infer that the sun is surrounded by a dense swarm of meteoric masses, ever thickening as we approach his vicinity; indeed, the variable demeanor of the phantom in question seems to intimate (what we suspect is the solution of its character) that it is an electrical phenomenon produced by the play of the electrical fluid in matter of an extremely

attenuated description attached to the sun. At any hour, however, discoveries may be made which will do much to clear up this as well as other ancient puzzles of the sky.*

Another attempt to account for the sun's high temperature ascribes it to the domestic operations of gravity. Assuming that this body represents matter which originally existed in a state of great diffusion, the process of condensation round a central point would necessarily be attended by a disengagement of heat. Looking at the operation simply under its mechanical aspect, the moving of the particles towards the nucleus, and the clashings and collisions thus produced, would raise a capital of caloric, upon the doctrine of transmuted motion, presumably sufficient to establish the sun in business as manager of a planetary system. To many persons indeed such a statement will appear perfectly incredible; or, if they admit that the primary stock of heat may be thus explained, they will insist that the theory makes no provision for subsequent supplies. But the effect of further condensation must not be forgotten. It has been computed by Helmholtz that the contraction of the sun's diameter to the extent of a single thousandth would "squeeze" out as much force as would balance all the heat and light he will squander for the next twenty thousand years.

One other theory deserves passing mention, not, indeed, from its intrinsic merit, but from its gay defiance of all consistency. The sun's warmth is renewed by *friction*. In rotating on its axis the orb brushes against the surrounding medium—the presumed ether of space—and this process occasions a continual discharge of heat, and even of light. But granting as we may the existence of such a medium, and admitting that it was of sufficient density to produce any noticeable amount of friction, should not the same principle be applicable to each planet, especially to the rapid revolvers like Saturn and Jupiter, who spin round on their axes, the former in little more, the latter in little less,

* Professor Balfour Stewart seems disposed to regard the red flames or protuberances, respecting which so much has recently been said, as auroral exhibitions in the upper solar atmosphere.

than ten hours; and, consequently, ought not each of these bodies to be called a little sun, after its own humble rushlight fashion? Or if it be supposed that the ether is much denser in the vicinity of the solar orb by reason of his commanding gravity, just so much more readily will his motion be retarded, just so much more speedily will his light and caloric be exhausted, and the poor luminary must eventually be brought to a complete halt by the application of this subtle empyreal "break." Mayer, indeed, calculated that, giving to this rotary movement all the effect that could be fairly ascribed to it, it could not, if wholly converted into heat, keep the sun in stock for more than 183 years.

But if the limits of human observation are too narrow to afford us the opportunity of detecting any decline in our imports of caloric, may we not at any rate draw some conclusions respecting the manners and customs of suns by studying their behavior on a large scale—that is, by noting whatever alterations may appear in some of the myriads which sparkle in the sky? Now, there are notoriously stars which wax and wane, stars which flame up conspicuously and then subside into insignificance, and stars, too, which suddenly start into view and then vanish apparently for ever. To explain these peculiarities, it has been supposed that the body thus affected may present a dark and a luminous side alternately, or that its native brightness may be obscured by the intervention of some opaque companion, or that instead of being spherical, its form may be such as to exhibit at one time a full face and at another a mere profile or silhouette, or that in consequence of some great convulsion the orb may really be inundated with fire, and finally go out after suffering all the agonies of a terrible conflagration. In sundry cases, too, stars are supposed to have undergone certain alterations of color, and these may be indicative of alterations in their luminous force. Since then there are, and have been, many examples of these changeable suns in the heavens, it is a possible thing that our own master orb may be subject to similar contingencies, and destined to experience analogous vicissitudes? Courage! however, suggests M. Guillemin:—

"Nous pouvons dormir tranquilles, nous et les générations qui nous suivront pendant bien des milliers de siècles. Notre approvisionnement de chaleur et de lumière est assuré pour un avenir dont nous ne pouvons mesurer la durée. Quelle que soit donc la fraction de ce temps qui nous reste encore à vivre on peut sans crainte de se tromper la mesurer aussi par des millions d'années. La fin du monde par le refroidissement et l'extinction du soleil est loin de nous!"

In speaking of our sources of heat, however, some little qualification is required. It is but an act of justice to other suns to remember that we owe some thing to them, small and insensible as the debt may at first appear. Swift was scarcely correct when he wrote—

"Stars beyond a certain height,
Give mortals neither heat nor light."

From every part of the heavens caloric may be said to be trickling down upon the earth, for each orb must be radiating its bright influences into space incessantly. Mr. Huggins and also Mr. Stone have made direct experiments upon the heating capabilities of certain stars, and the latter gentleman ascertained that Arcturus produced an effect equal to that which would be derived from the face of a Leslie cube filled with boiling water, and placed at a distance of 383 yards, whilst a Lyre threw out as much warmth as would be represented by a similar cube at a distance of 860 yards. Small as these individual issues may appear, it is something to know that thousands of orbs are sending us their subsidies of caloric. It seems difficult to believe that those calm cold-looking stars, with their icy glitter, should cast out any thermal rays which would produce the smallest appreciable effect upon our broad acres or deep foggy atmosphere, particularly as Pouillet fixed the temperature of space at 110 degrees below zero. But paradoxical though it may seem, he computed that whilst the sun by his proper force communicates to our globe annually (that is actually delivers *here*) sufficient heat to melt a shell of ice 31 metres in depth, the stars and space afford us as much more as would fuse a shell of 26 metres! It has even been affirmed that if, during the hours of night and the wintry season of the year, we were deprived of this unostentatious supply—this low-toned and ob-

seure caloric, as it might be called—our own radiations into space would be so exhausting that the sun itself would scarcely be able to carry on the business of vitality in the planet.

One question cannot fail to present itself here. Is there any reason to suppose that the sun will ever run out of light, that it will ever become bankrupt in heat? It is impossible to imagine anything more prodigal of his treasures than the "informer of the planetary train." He pours out his beams above, below, around; by night as fluently as by day; and upon the wastes of the universe as freely as upon the most crowded tracts of creation. He is such a spendthrift of his splendors that he would shine on if every planet were as barren of life as the moon, or as filmy in substance as the comet. But surely, think we, this reckless expenditure of energy must tell upon his exchequer, and some symptoms of decline, if not of future exhaustion, might be expected to appear?

Not, indeed, that there is such a thing as the absolute destruction of force. Upon modern principles, as we have seen, it is simply transmuted, never extinguished. But it would afford us, daily pensioners upon the bounty of the sun, scanty comfort to know that the solar energies might be dispersed over the universe without a single particle being actually lost. That which concentrated in one central body is capable of vivifying a whole family of worlds, would not possess sufficient potency to maintain a cabbage garden, were it parcelled out amongst myriads of stars; just as the annual revenue which enables an empire to fill every sea with its ships and every land with tokens of its power, would neither support a single pauper, nor make an appreciable addition to a rich man's pocket-money, if equally distributed amongst its inhabitants.

There is, of course, no mode by which the question of declining energy can be accurately determined. It is impossible to say from mere human testimony whether the sun possessed a whit more photographic power a thousand years ago than he does now, or whether his beams played with more ardor upon the painted hides of the ancient Britons than they do upon the highly accoutred

forms of their more polished successors. Changes of climate have undoubtedly occurred on our globe, and many vicissitudes of temperature are geologically recorded in our rocks; but it is needless to state that these are not due to any unsteadiness on the part of the sun.

Still, if a man is spending his fortune at a given rate per annum, and we know of no outward sources from which it can be renewed, it might be possible to hazard a guess at the longest period for which it would last. We should, of course, have to conjecture what his capital now is, or what it might have been when his spendthrift career commenced. According to the calculations of Herschel and Pouillet, says Professor Thomson, in a remarkable memoir on the "Age of the Sun's Heat," that body "radiates every year from his whole surface about 6×10^{26} (six million, million, million, million, million) times as much heat as is sufficient to raise the temperature of 1 lb. of water by 1 degree Cent." Assuming that the mean specific heat* of the solar mass were equal to the specific heat of water (this liquid being about the greatest devourer of caloric upon our earth) the rate of cooling deduced from the above computation would be 1 degree Cent., and 4-10ths of a degree per annum. For certain reasons Sir W. Thomson regards it as highly probable that the sun's specific heat is more than ten times and less than 10,000 times that of the fluid in question. "From this it would follow with certainty that his temperature sinks 100 degrees Cent. in some time from 700 years to 700,000 years." Pouillet, estimating the specific heat of our luminary at 133 times that of water, infers that he is expending his warmth at the rate of one degree Cent. in a century. Small as this may appear, it must be considered that in 6,000 years it would amount to a decline of 60 degrees (= 108 Fah.), which comprehends as great a range of temperature as lies between an African summer with its

* Specific heat is the quantity of caloric (if we may speak of such a force quantitatively) which a given substance absorbs or stows away—hides, as it were, in itself in a latent form—whilst passing from one degree of temperature to another. To raise one body a single degree requires more or less heat than another; hence its capacity is said to be large or small.

sudden sunstrokes, and an Arctic zero with its stealthy frostbites. Reasoning, however, upon the supposition that the sun's caloric was acquired from the fall and coalition of smaller bodies under the constraints of gravity, Sir W. Thomson concludes that we may accept

"as a lowest estimate for the sun's initial heat 10,000,000 times a year's supply at the present rate, but 50,000,000 or 100,000,000 as possible in consequence of the sun's greater density in his central parts. The considerations adduced above in this paper regarding the sun's possible specific heat, rate of cooling, and superficial temperature, render it probable that he must have been very sensibly warmer one million years ago than now, and, consequently, that if he has existed as a luminary for ten or twenty million years, he must have radiated away considerably more than the corresponding number of times the present yearly amount of loss. It seems, therefore, on the whole, most probable that the sun has not illuminated the earth for 100,000,000 years, and almost certain he has not done so for 500,000,000 years. As for the future, we may say with equal certainty that the inhabitants of the earth cannot continue to enjoy the light and heat essential to their life for many million years longer unless sources now unknown to us are prepared in the great storehouse of creation."

But this glorious orb, bright and unsullied as it seems to the untutored eye, is by no means stainless. On the contrary, its countenance is rarely free from blotches. One day towards the beginning of the seventeenth century a Dutch observer, Fabricius, whilst eying the sun with a telescope, was struck by the appearance of a speck of considerable dimensions. What could it be? A cloud, was his first surmise; but as it was impossible to continue his inspection long for want of a fitting mode of moderating the solar radiance, he and his father were compelled to postpone their scrutiny till the next day. Impatiently they retired to rest, indulging in many a curious speculation as to the nature of the phenomenon. Eagerly they arose; and, on scanning the sun's disc, there was the mysterious intruder, slightly changed in position, and still more slightly changed in form. Great, however, was the chagrin of the worthy pair when three days of untoward weather intercepted their view of the sun. But, this passed, the apparition was not only found to have advanced

some distance towards the western rim, but a smaller spot had emerged on the eastern border, and in a few days this was followed by a third. All were evidently in full march across the solar field, and all successively disappeared. Between the hope of seeing them again and the fear of losing them for ever, poor Fabricius was kept in a state of considerable agitation, and therefore it was with inconceivable pleasure that, after the lapse of some days, he saw the first of them spring up again on the eastern margin of the luminary. Then he knew, either that the objects in question must have made a complete revolution round the sun, like little planets, or, that the sun itself, as Bruno and Kepler had suspected, possessed a rotatory motion of its own.

Now these spots have been the subject of much study in recent years, not only on account of their interest as solar eccentricities, but because it was expected that a correct understanding of their character would throw much light on the sun's constitution. Specks as they seem, their movements have been followed and their changes mapped down with an attention which might seem exaggerated if we looked upon them simply as a Lunarian might upon the clouds floating in our own atmosphere. In this country, Mr. Carrington, who has published the results of his telescopic rambles in the spotted regions, in a splendid volume,* stands conspicuous; and Messrs. Warren de la Rue, Professor Balfour Stuart, and Mr. Loewy, who have devoted much time and thought to the same subject, have given (and the word must be taken in its literal sense) the fruits of their labors to the public in a series of valuable papers on Solar Physics.

If we imagine ourselves to be standing at some distance from a terrestrial globe, and regard the large islands which speckle the tropical seas as sun spots, we shall notice changes of aspect due entirely to the rotation of the sphere, if slowly and equably performed. Take Madagascar, for example. The island, on emerging from the "wooden horizon," would appear to move some-

* Observations of the Spots on the Sun, from Nov. 9, 1853, to March 24, 1861, made at Redhill, by Richard Christopher Carrington. 1863.

what tardily, but would proceed more rapidly as it approached the "brass meridian;" this passed, it would slacken its pace gradually until it dipped into darkness on the other side. The reason is obvious. The motion, in the first place, is partly lost to us because the object is travelling in a measure towards the eye: in the central portions it is more fully displayed, because the object is travelling athwart the field of vision, whilst in receding, the conditions are reversed, and the pace appears, therefore, to be retarded. Then, too, it was observed, in studying the blots on the sun, that when there were several in sight, they generally took similar paths—tracing, as it were, parallel or concentric lines, like lines of latitude across his disc. Just so, we need scarcely say, the islands on our globe would appear to move in corresponding routes, the curvature being dependent upon the inclination of the pole to the plane of vision. Some specks there are, however, which seem to be endowed with a mobility of their own; for, unlike their island representatives here, they are occasionally observed to vary their distances from each other; one mentioned by M. Langier retreating from a neighbor at the rate of 111 metres per second. The proper motion of the spots, which follows a regular law of increase in proportion to their proximity to the equator, is found to be opposed in direction to that of the sun's rotation.

But these objects do not present themselves at random over the dazzling disc. They affect certain latitudes and eschew others. Even early observers of the phenomenon did not fail to notice that they rarely ventured out of a belt of 30 degrees on each side of the solar equator, which for that reason was designated the "royal zone." In a few instances, indeed, stragglers have been seen in much higher latitudes, and one very lonely and exceptional individual was discovered by La Hire as far north as 70 degrees. But, strange to say, they shun the equator itself almost as much as they do the polar circles. Out of 954 groups observed by Mr. Carrington, one only lay across the line; in four degrees on either side specimens were thinly scattered, whilst in the belts comprehended between the 10th and 30th degrees (the northern hemisphere, however, being

more preferred than the southern) they appeared with such frequency, that it is obvious these must be regarded as their favorite promenades.

The most significant feature, however, about these objects is their general construction. They are not of uniform hue, but in or towards the centre there is a dark part called the umbra, or nucleus, and round it there runs a grayish or more gently shaded portion known as the penumbra, the shape of the latter being dictated, in a great measure, by that of the former, just as the fringing round an island on our artificial globe adapts itself to the contour of the island itself. This typical form, however, admits of many variations, and is rarely realized in its perfect simplicity. There may be two or three or more black nuclei; the penumbra may seem to be quite out of proportion to the central parts; the outer lines may be ragged and destitute of anything like true conformity; here we may have an eccentric specimen without any dark core, and there another which has dispensed entirely with its shaded appendage. Not unfrequently the gloom of the black abyss in the centre (so imagination might deem it) is relieved by bright streaks or patches, and sometimes it is spanned by lines or arches of light, which Herschel happily described as "luminous bridges." Occasionally the penumbra has a striped or corrugated appearance, which has been compared, by another felicitous illustration, to the slopes surrounding a lake when furrowed by the beds of innumerable streams.

But whatever may be the shape the spot assumes, it undergoes certain changes, some of which are optical, some internal. When first detected on the eastern border (telescopically viewed) the visitor looks like a line or a streak; as it advances it assumes an oval configuration; at the centre it attains its greatest rotundity, and then it passes through reverse transformations before it runs off the opposite edge. Precisely similar changes would appear in our Madagascar, making allowance for its oblong contour, if surveyed from a distance during a half revolution of the globe. The internal alterations are, of course, more capricious. The dark core may expand, but usually the penumbra seems to invade the nucleus, and divide it into por-

tions, or overflow it entirely, gradually vanishing itself in turn. Occasionally patches break up with great rapidity, if we consider their prodigious bulk, for many of them are vastly larger than our terrestrial continents; several, indeed, having been upwards of 50,000 miles across; and one of some notoriety mentioned by Dr. Wollaston, is said to have shattered into fragments almost under the observer's eye.* M. Flammarion gives a lively account of another which slowly threw off a smaller or infant spot by a process similar to that of fissiparous generation: the parent left the little thing lagging in the rear, and sailed away composedly, whilst its offspring was agitated by internal movements and finally went down into the luminous sea around.† The duration of some maculæ, however, is considerable. Follow one across the solar field, and after an interval of about 12½ days (during which the sun performs a semi-revolution) *plus* the advance made by the earth in its orbit, the same object will reappear modified in shape, but as near as may be identical in position. For six months a big spot haunted the luminary in 1779, and in 1840, Schwabe tracked another, which returned not less than eight times.

But passing over sundry other features in their character, there is one circumstance connected with the spots which is extremely important. It could not fail to be remarked that there were seasons in which they were abundant, and seasons in which they were scarce. Certain years have passed without a single speck being discovered, or at least recorded. By and by the question was asked, whether there could be anything periodic in their proceedings? Continuous study of their habits eventually showed that there was a regular cycle, and Herr Schwabe ascertained that for about five years they increased in number, whilst for about five years more they gradually declined. Wolf, availing himself of still more extended observations, decided that this cycle occupied 11.11 years.

A still more surprising coincidence was detected. The intensity of the earth's magnetism, as expressed in the

variations of the magnetic needle, is subject to a periodic increase and diminution. Curious to say, this also is comprehended within a cycle of ten or eleven years; indeed, the two terms appear to be nearly, if not wholly coincident. But does this correspondence in action imply connection in cause? One circumstance seems to point to such a conclusion. It is that the periods of maxima and minima in the two cases are in exact accordance. It has been said, also, that "magnetic storms" occur with greater frequency about every ten years, and that at such seasons spots may be seen developing themselves in the sun, and changing their size and character with unusual rapidity, as if to show that the sympathy extended to the most temporary fluctuations.

Again, it was suspected by the elder Herschel that the heat received from the sun was greatest when the patches were most numerous; and, as some test of the accuracy of this surmise, he compared the price of wheat on our earth for a certain time previously with the state of affairs on the surface of the sun. Corn fell here (so he thought) as the spots rose there. Dr. Wolf also inferred from his observations that the driest and most prolific years on our planet coincided with those in which the sun's countenance had been most profusely speckled. Arago, Barratt, and Gautier, however, have arrived at a contrary conclusion.

But this is not all. Other periods of variation have also been inferred, if not determined. Wolf discovered a large cycle of 55 years, a smaller epoch of 233 days, and then a tiny term of 27 days, which virtually synchronizes with the sun's rotation on its axis. Another of 584 days will presently be mentioned.

Assuming the fact of periodicity then to be established in reference to the spots, we have to seek for some cause which operates with regularly varying power. Nothing can be more uniform in their play than the tides upon our globe, but these heavings of the ocean are due to a force from without. Can it be that the blemishes on the sun are the results of some external instead of some domestic agency? Possibly the planets may be the disturbers of its peace? De la Rue, Stewart, and Loewy have elaborately investigated this ques-

* Philosophical Transactions, vol. 64, p. 329.

† "Comptes Rendus," vol. 67, p. 90.

tion, and indicated a connection between the nearer planets and the solar spots. Finding, from certain data, that it was necessary to assume the existence of some travelling influence which returned to the same position with reference to the earth in the period of about twenty months, the mean being 584 days, Venus at once stood detected. That was her synodical time. Her bulk and proximity to the sun would of course give her considerable power over Phœbus. Jupiter is more distant, but his mass is very much larger, and he, too, meddles with the solar affairs, though, not apparently, in a predominant fashion. Naturally enough, too, it might be expected that Mercury, diminutive as he is, would claim his share of influence in virtue of his near relationship to the Head of the system. Accordingly it was found, that when Venus and Mercury were together in the heavens, there was evidence of a decided excess of action, as compared with the seasons when the two were estranged. It was also ascertained that, when Venus, and probably Jupiter, crossed the solar equator, the spots were drawn towards that region, but when the planet attained its greatest (heliographical) latitude, their tendency was to spread out in a polar direction. Could these bodies act by intercepting the hail of meteors to which reference has been made, thus leaving blank or dark places where no fuel was supplied?

In a paper in the "American Philosophical Transactions," Dr. Kirkwood* has recently discussed this doctrine of planetary influence, and finds it necessary to insert the following proviso, namely, that a particular part of the solar surface should be considered more sensitive to foreign force than others. Granting this condition, he thinks it unquestionable that the sun-spots are ruled in their behavior by the configurations of the nearer planets. To Mercury he ascribes the chief honor of managing the 11-year cycle; the 56-year period is due to the combined action of Mercury and the

Earth, whilst the 233-days' epoch is in significant accordance with the conjunctions of Venus and Jupiter.

"We do not, of course," say Messrs. De la Rue, Stewart, and Loewy, "imagine that we have as yet determined the nature of the influence exerted by these planets on the sun; but we would, nevertheless, refer to an opinion expressed by Professor Tait, 'that the properties of a body, especially those with respect to heat and light, may be influenced by the neighborhood of a large body.' Now an influence of this kind would naturally be most powerful upon a body such as the sun, which possesses a very high temperature, just as a poker thrust into a hot furnace will create a greater disturbance of the heat than if thrust into a chamber very little hotter than itself. In the next place, it is not to be inferred that the mechanical equivalent of the energy exhibited in sun-spots is derived from the influencing planet, any more than it is to be inferred that the energy of a cannon-ball is derived from the force with which the trigger is pulled.

"The molecular state of the sun, just as that of the cannon, or of fulminating powder, may be extremely sensitive to impressions from without; indeed, we have independent grounds for supposing that such is the case. We may infer from certain experiments, especially those of Cagniard de Latour, that at a very high temperature, and under a very great pressure, the latent heat of vaporization is very small, so that a comparatively small increment of heat will cause a considerable mass of liquid to assume the gaseous form, and *vice versa*. We may thus very well suppose that an extremely small withdrawal of heat from the sun might cause a copious condensation, and this change of molecular state would, of course, by means of altered reflection, &c., alter to a considerable extent the distribution over the various particles of the sun's surface of an enormous quantity of heat, and great mechanical changes might very easily result."

What, then, do these spots indicate? According to some early theorists, they consist of smoke hovering in the sun's atmosphere, or of scum and scoræ swimming at the surface of his ocean, like the refuse in a furnace of molten metal. In the opinion of others, great volcanoes lay concealed at the bottom of the shining sea, and these, ever and anon, cast up masses of "bituminous matter," which appeared to us as specks, but might be compared to temporary islands,

* Dr. Kirkwood is Professor in the University of Indiana, and is one of the ablest astronomers in the United States. His opinions are more quoted and respected abroad than those of any other savan we have, except perhaps Agassiz.—Editor ECLECTIC.

* "Researches on Solar Physics." Second Series, p. 45.

like that of Santorin, except that they wasted more rapidly away; whilst others again imagine that the macule were projecting parts of the solar globe left dry and exposed by the retreat or withdrawal of the luminous substance for the time, in consequence of a species of tidal action.

Far more plausible, however, was the view propounded by Dr. Alexander Wilson, of Glasgow, about the year 1774. His idea was that the spots were "immense excavations in the body of the sun," some of them two, three, or four thousand miles in depth, and that the dark part was the floor of the hollow, whilst the shaded portion represented its sloping slides. This conclusion was deduced from the fact that when an emergent specimen presented itself on the border of the disc, the further side of the penumbra was the first to become visible, then the nucleus, and afterwards the nearer side of the penumbra. On retiring from view these phases were reversed. There could scarcely be but one explanation. A funnel let into a sphere revolving under similar circumstances would exhibit similar results; a cone or projecting body certainly would not. In the theory as revised by Sir W. Herschel, the penumbra was attributed to a cloudy stratum in the sun's envelope, which reflected the light of the luminous stratum above, while the solid body of the orb, shaded by clouds, reflected little or none. And in some shape or another this notion that the spots are temporary rents or pits in the solar atmospheres has proved the most popular hypothesis of all. Unfortunately for Wilson's views, he held that the nucleus of the orb, visible through the chasm, was dark and cool; whereas that searcher of suns, the spectroscope, seems to point to the conclusion that it must be a ball of intensely heated matter.

So recently, however, as the year 1866, Professor Challis, writing on the subject of the solar atmosphere, suggested that possibly the spots might, after all, be clouds of aqueous texture, in which case the coalescence of their globules would produce genuine raindrops. The obvious difficulty arising from the sun's elevated temperature was cleverly evaded, indeed utilized, by assuming that the excessive heat would raise the vapor in the form

of steam, and that its particles would affect that well-known "spheroidal" state, in which attraction and repulsion are so critically adjusted; moreover, the existence of an ocean—a solar Atlantic—as the necessary source of this vapor was also deemed practicable, seeing that the enormous pressure of the atmosphere would keep the fluid from flying off unless heated far beyond our terrestrial boiling-point. But vapor so formed must, sooner or later, descend. It would do so in the shape of rain, and, where a copious downfall occurred, there spots might be supposed to appear. Since, however, recent spectroscopic research, as Mr. Janssen shows, seems to negative the existence of aqueous matter in the solar envelope, it would be premature to assert that our luminary is a place for simmering seas and scalding showers.

On the other hand, Kirchhoff, who takes his stand upon a nucleus heated white hot, intimates that a spot may be an agglomeration of gaseous matter—a chemical cloud—formed in the lower part of the atmosphere in consequence of some diminution of temperature in the underlying portions of the sun's surface. This cloud, intercepting the flow of heat from beneath, would lead to the production of another, more shadowy in its structure, at a much higher point in the envelope; the latter constituting the penumbra, the former the core of the spot.

Dissatisfied with all previous solutions, M. Faye propounds another. The sun has no solid nucleus; it is gaseous to its centre. Owing to the heat garnered up in the interior, the forces of affinity and cohesion cannot operate freely there, but at the surface it is probable they will come into liberal play. Hence condensation, and afterwards precipitation, will ensue. A series of ascending and descending currents will be produced, the object being to transfer heat from the central reservoir of caloric to the radiating regions above. Where the upward currents prevail at the moment the luminous substance of the photosphere will be temporarily dispersed, and the observer looking down through the aperture thus produced will see the gaseous core, dark and opaque to all appearance, not because it is cold, but because, even if heated to incandescence, its radiating faculties are too slight to render it visi-

ble when contrasted with the resplendent material by which it is surrounded.

Now, to say nothing of the inadequacy of this theory on various grounds—failing as it does, for instance, to meet the exigencies of perspective, for the nucleus should be as visible near the border as the penumbra—it seems to blow hot and cold with the same breath; for it is difficult to conceive of a gaseous nucleus so highly heated that the photosphere is comparatively cool, and yet so dark that the latter is infinitely more brilliant.

With our limited knowledge, however, of the sun's constitution, it would be premature to speak with any confidence as to the cause of these interesting phenomena. Much must of course depend upon the final decision (if finality can ever be reached on such a point) as to the nature of the solar envelopes. In a globe so highly heated as the sun's nucleus is presumed to be, and surrounded as it probably is by atmospheres of such extent and complexity, it is certain that great disturbances must continually arise. Whatever may be the mode in which the wonderful expenditure of radiant force is regularly balanced, the process must unquestionably involve much energetic action, and may be accompanied by many violent commotions. To a spectator, looking down upon our planet from a more elevated point than balloon ever reached, a hurricane or tornado, produced by some slight alteration of temperature, or a thunder-storm floating in the lower regions of the air whenever the electrical equilibrium was

broken, would appear a very frequent and inevitable exhibition. Even if the most commonplace breezes could be inked or colored, so as to become visible to such an observer, our atmosphere would seem to be the seat of incessant turmoil. But in an orb where gravity is twenty-eight times as powerful at the surface as it is here, where the pressure of the aerial ocean must be so prodigious, and where yet the temperature of the mass is so elevated, is it any wonder if that gaseous envelope should be the theatre of extensive local perturbations? Now, assuming the existence of an outer atmosphere encompassing the photosphere, and of colder quality than the latter, Messrs. De la Rue, Stewart, and Loewy suggest that the spots may be produced by a descending current from the higher regions, which current breaking in upon the photosphere chills or disperses it, and by its absorbent powers drinks up the rays of light, and so presents the spectacle of a dark nucleus. It must be enough simply to indicate this most probable of all explanations, and to point in confirmation to the spiral-shaped patches in which the luminous matter seems to be sucked in and carried down into a gaping vortex, these formations looking pretty much like cross sections of a whirlpool or water-spout, if viewed from above. Instances have occurred in which the penumbra appeared to be equally in rotation round the nucleus, and as the spots are evidently excavations or funnel-shaped cavities, the most natural inference seems to be that they are due in the main to some descending force.

(To be concluded.)

♦ ♦ ♦
The Cornhill.

AT ROME.

WHAT came we forth to see? a prima donna
Caressed and fêted by an idle crowd?
Or would we do some favored princeling honor
That thus we herd so close, and talk so loud?

Pushing and struggling, fighting, crushing,
shouting,

What are these motley gazers here to seek,
Like merry-makers on a summer outing?
'Tis but the services of Holy Week.

The pious Romans thank the Virgin Mary,
For pockets heavy and for feelings light;
And most devoutly mulct the *forestieri*
Of a round number of strange coins per night.

The Eternal City swarms with eager strangers
From every quarter of the busy earth;
Who fill the temples, like the money-changers,
And say some prayers—for what they may be worth.

In never-ending tide of restless motion,
They come to burn, in fashion rather odd,
The incense of their polyglot devotion,
Before the altars of the Latin God.

As flock the Londoners to Epsom races,
Or from a "queue" to see the newest play,
So do the pilgrim-tourists fight for places
Before the chapels in their zeal to pray.

From holy place to holy place they flit,
To "do" as many churches as they can
And humbly kneeling, for the fun of it,
They climb the staircase of the Lateran.

Here a fair maid from melancholy* Erin—
Where by Swiss bayonets the way is barred,
Nor Heaven, nor Pope, nor Antonelli fearing—
Breaks through the lines of the astonished
guard.

In customary suit of solemn black,
With string of beads and veil *d l'Espagnole*,
She means to "see it all;" to keep her back
Would be to peril her immortal soul.

There a slim youth, while all but he are kneel-
ing,
Through levelled opera-glass looks down on
them,
When round the Sistine's pictured roof is peal-
ing
Our buried Lord's majestic Requiem.

For him each storied wonder of the globe is
"The sort of thing a fellow ought to see;"
And so he patronized *Ora pro nobis*,
And wanted to encore the *Tenebre*.

Stranger! what though these sounds and sights
be grandest
Of all that on Earth's surface can be found?
Remember that the place whereon thou stand-
est,
Be thy creed what it may, is holy ground.

Yet I have gaped and worshipped with the
rest—
I, too, beneath St. Peter's lofty dome
Have seen, in all their rainbow-colors dressed,
The tinselled glories of monastic Rome;

Have heard the Pontiff's ringing voice bestow,
'Mid cheering multitudes and flags unfurled,
Borne by the cannon of St. Angelo,
His blessing on the "City and the World;"

Have seen—and thrilled with wonder as I
gazed—
Ablaze with living lines of golden light,
Like some fire-throne for Arimaucs raised,
The great Basilica burn through the night;

Have heard the trumpet-notes of Easter day
(Stones on the lake translated into sound,)
In strange unearthly music float away,
Their silver echoes circling all around:

But I would wander from the crowd apart,
While heads were bowed and tuneful voices
sang,
And through the deep recesses of my heart
A still small voice in solemn warning rang.

"O vanity of vanities! ye seem,
Ye pompe and fineries of cleric state,
To make this text the matter of your theme,
That God is little, and that Man is great.

* The epithet rests, it will be remembered, on
high authority.

"Is this parade of priestly wealth and splendor
The lesson of the simple Gospel-word?
Is this the sacrifice of self-surrender
Taught by the lowly followers of the Lord?

"In that bent form, with lace and gold bedi-
zened,
Wrapt in the incense of idolatry,
Are the old spirit and old heart imprisoned
Of the poor fishermen of Galilee?

"Do we, who broider thus the garment's hem,
Think of the swaddling-clothes the child had
on?
Grace we the casket, to neglect the gem?
Forget we quite the manger for the throne?

"How long, O Lord, how long? Must then for
ever
The idle throng deface thy sacred walls?
Will mighty Rome throw off these trappings
never?
Oh, of her prelates and her cardinals

"If there be one who with his faith not falters,
But holds the truths divine not taught in vain,
And if about her desecrated altars
One shred of true religion yet remain,

"Among their ranks will not the late avenger
Rise, as of old the Saviour rose in wrath,
O'erthrow the tables of the money-changer,
And scourge the rout of mummers from his
path?

"Or will the waters break from Earth asunder,
In some new flood the sons of pride to drown,
And the insulted Heavens descend in thunder
Upon this mask of impious mockery down?"

* * * * *

While thus in moralizing mood I pondered,
I turned me from the hum of men alone;
And, as my vagrant fancy led me, wandered
Amid the maze of monumented stone.

The crowd their favorite lions had deserted—
Left galleries and ruins in the lurch;
The cicerone's glory had departed,
For 'twas the proper thing to be at church.

So at my will I strayed from place to place,
From classic shrines to modern studios—
Now musing spell-bound, where Our Lady's*
face
In nameless godhead from the canvas glows.

Now, from the still Campagna's desolate rise,
I saw the hills with jealous clasp enfold
The lingering sunlight, while the seaward skies
Paled slowly round the melting disc of gold;

Now gazed, ere yet on dome and tower had
died
The glory of the Roman afterglow,
Over the map-like city lying wide,
Half-dreaming from the Monte Mario.

* The Madonna of Foligno.

Traveller, do thou the like; and wouldst thou learn

How Rome her faithful votaries enthralled
With all the memories that breathe and burn
Within the magic circle of her walls,

Leave pomp of priest and track of guide led
tourist;

And drink of history at the fountain-head;
For living minds and living things are poorest
In that vast mausoleum of the dead.

There, where the stately Barberini palace,
Like some new Nimrod's fabric Heavenward
climbs,

Enduring monument of Christian malice,
By outrage wrested from the Pagan times; *

Where, lulled and drowsy with the distant hum,
The sentinel keeps watch upon the town,
And from the heights of old Janiculum
On Father Tiber's yellow face looks down;

Where in their southern grace the moonbeams
play

On Caracalla's tessellated floors,
And rescue from the garish light of day
The Colosseum's ghostly corridors;

Where Raphael and all his great compeers
Art's form divine in giant-mould have cast,
The very air is heavy with the years,
The very stones are vocal of the past.

Still, as we saunter down the crowded street,
On our own thoughts intent, and plans, and
pleasures,

For miles and miles, beneath our idle feet
Rome buries from the day yet unknown trea-
sures.

The whole world's alphabet, in every line
Some stirring page of history she recalls;
Her Alpha is the Prison Mamertine,
Her Omega, St. Paul's without the Walls.]

Above, beneath, around, she weaves her spells,
And priest and poet vulgarize in vain:
Who once within her fascination dwells,
Leaves her with but one thought—to come
again.

So cast thine obol into Trevi's fountain—
Drink of its waters—and, returning home,
Pray that by land or sea, by lake or mountain,
“All roads alike may lead at last to Rome.”

H. C. MERIVALE.

—♦♦♦—
All the Year Round.

A HINDU LEGEND.

ABOUT a century before our Christian era, there lived in India—precise locality a little hazy to us western barbarians—a certain king and demigod, called Gandharba-Sena. Now Gandharba-Sena was the son of Indra, the great God of the Firmament; and according to Captain Burton (whose delightful book† we are going to lay under contribution for an article) he was the original of that famous Golden Ass, whose metamorphosis and vicissitudes are told by Apuleius. For, having offended Father Indra by an indiscreet tenderness for a certain nymph, he was doomed to wander over the earth under the form of a donkey, by day; though by the interposition of the gods he was allowed to become a man by night. While still for half his time a donkey, Gandharba-Sena persuaded the King of Dhara to give him his daughter in marriage; but it unfortunately happened that at the wedding hour the bridegroom could not show himself otherwise than as an ass; in

which, perhaps, he was not singular, taking the circumstances into consideration. Hearing music and singing within, he resolved to give them a specimen of his powers of melody too: so he lifted up his voice, and brayed: to the consternation and contemptuous amusement of the company. The guests began forthwith to remonstrate with the king.

“O king,” said one, “is this the son of Indra? You have found a fine bridegroom; you are, indeed, happy; don't delay the marriage; delay is improper in doing good; we never saw so glorious a wedding! It is true that we once heard of a camel being married to a jenny-ass; when the ass, looking up to the camel, said, ‘Bless me, what a bridegroom!’ and the camel, hearing the voice of the ass, exclaimed, ‘Bless me, what a musical voice!’ In that wedding, however, the bride and bridegroom were equal; but in this marriage that such a bride should have such a bridegroom is truly wonderful.”

“Other Brahmans then present said: ‘O king, at the marriage hour, in sign of joy, the sacred shell is blown, but thou hast no need of that.’” (Alluding to the donkey's braying.)

* “Quod non fecerunt barbari, fecerunt Barberini.”

† Vikram and the Vampire; or, Tales of Hindu Devilry. Adapted by Richard F. Burton, F.R.G.S., &c. London: Longmans & Co.

"The women all cried out, 'O my mother! what is this? At the time of marriage to have an ass! What a miserable thing! What! Will he give that angelic girl in wedlock to a donkey?'"

"At length Gandharba-Sena, addressing the king in Sanskrit, urged him to perform his promise. He reminded his future father-in-law that there is no act more meritorious than speaking truth; that the mortal frame is a mere dress; and that wise men never estimate the value of a person by his clothes. He added that he was in that shape from the curse of his sire, and that during the night he had the body of a man. Of his being the son of Indra there could be no doubt. Hearing the donkey thus speak Sanskrit—for it was never known that an ass could discourse in that classical tongue—the minds of the people were changed, and they confessed that, although he had asinine form, he was unquestionably the son of Indra. The king, therefore, gave him his daughter in marriage."

The son of this man-donkey, or donkey-man, Gandharba-Sena, and the Princess of Dhara, therefore the grandson of Indra, was the great soldier-king Vikramaditya, or Sun of Heroism, "Vikram" meaning valor or prowess, the King Arthur, the Charlemagne, the Harun el Rashid of India. (We follow Captain Burton, who presumably knows what he is about, in the spelling of our old friend's name.) Before the Sun of Heroism's birth Gandharba-Sena promised him the strength of a thousand male elephants; but Indra swore an oath that he would never be born; whereupon his mother stabbed herself, and Vikram, as he is called for short—it is lucky for him he did not get curtailed to Vick—came into the world on his own account, and so saved his grandfather's oath. In conclusion, perhaps as some sort of compensation, Indra, to whom the little Sun of Heroism was taken, had compassion on him, adopted him, and gave him a good education: which last fact is an example which all irate but influential grandfathers ought to follow.

We come now to two quasi-historical and decidedly less mythical accounts of Vikram; one which makes him the second, the other the eldest, son of his father. In the first account, of course, he mur-

dered his elder brother, Shank, as all wise young princes, in India, do. For though he was protected by grandpapa Indra, and endowed by Father Gandharba-Sena with the strength of a thousand male elephants, still as the younger brother of the reigning monarch he would not have found things quite to his taste. The second account makes him the eldest son of Gandharba-Sena, of whom the most that posterity has to say is, that he became an ass, married four queens, and had six sons: each of whom was more powerful and learned than the other; and that when he, Gandharba, died, Vikram and his younger brother, Bhartarihari, received some excellent advice from their worthy grandfather about mastering everything; which, as Captain Burton says, is a sure way not to succeed in anything. Without going into the list of their required accomplishments, suffice it to say, they were to be models of morality, and inexhaustible wells of learning; the outcome of which was that Vikram, when he had become a monarch on his own account, meditated deeply on what is said of monarchs. "A king is fire and air; he is both sun and moon; he is the god of criminal justice; he is the genius of wealth; he is the regent of water; he is the lord of the firmament; he is a powerful divinity who appears in human shape." He reflected with some satisfaction that the scriptures had made him absolute, had left the lives and properties of all his subjects to his arbitrary will, had pronounced him to be an incarnate deity, and had threatened to punish with death even ideas derogatory to his honor.

His kingship, however, despite its power and glory, was no sinecure practically; and what between the necessity of swallowing a mithridatic every morning on the saliva, or, as we say, on an empty stomach; of making the cooks taste every dish they had prepared before he would touch a morsel of it; of being fully armed when he received strangers; and of having even women searched for concealed weapons, before they were admitted to him, his life must have been anxious as well as busy. Pedantically marked out, and wearisomely monotonous, it certainly was. The result of it all was, it must be confessed, a well-ordered kingdom, where no one was op-

pressed, and where all had equal justice; where the innocent were protected, and offenders inexorably punished: whereby the majesty of the law was upheld, and a wholesome fear of the rulers inculcated. "But what benefited him most was his attention to the creature comforts of the Nine Gems of Science: those eminent men ate and drank themselves into fits of enthusiasm, and ended by immortalizing their patron's name." Suddenly, the king bethought him he would travel, that he might, in fact, spy out in disguise the nakedness of the lands, and so judge for himself how he could best bring his powerful army against them. He had several sons by his several wives, and he had a fair share of paternal affection for all, save, of course, his eldest born: a youth who conducted himself as though he had no claim to the succession! But of all, Dharma Dwaj, his second son, was his favorite. Accompanied by this young prince, an adolescent of admirable modesty and simplicity, Vikram the Brave, giving the government of his kingdom and the city Ujjayani into the charge of his younger brother, Bhartari Raja, set out in the garb of a jogi, or religious mendicant: wandering from city to city, and forest to forest, to see what fate and chance would send in his way.

Now, the Regent Bhartari Raja "was of a settled melancholic turn of mind, having lost in early youth a very peculiar wife. One day, while out hunting, he happened to pass a funeral pyre, upon which a Brahman widow had just become sati (a holy woman) with the greatest fortitude. On his return home, he related the adventure to Sita Rani, his spouse, and she at once made reply that virtuous women die with their husbands, killed by the fire of grief, not by the flames of the pile. To prove her truth, the prince, after an affectionate farewell, rode forth to the chase, and presently sent back the suite with the robes torn and stained, to report his accidental death. Sita perished upon the spot, and the widower remained inconsolable—for a time." He led the dullest of lives, and took to himself sundry spouses, all equally distinguished for birth, beauty, and modesty; he regulated his desires in all things by the strictest rule and measurement; he worked as ploddingly and unrestingly as a horse in a mill; and when his mono-

tonous day was over, he used to retire to his private apartments, and while listening to soft music and spiritual songs fall fast asleep, as the best compliment he could pay the minstrels. Sometimes, on wakeful nights, he used to summon his brother's Nine Gems of Science, and give ear to their learned discourses, which never failed as soporifics when nothing else could "get him off," as nurses say. So time and his youth passed away, and Bhartari Raja became a philosopher and a quietist.

But Kama, God of Love, no more able than his younger brothers Eros and Cupid to let sleeping dogs lie, sent into the raja's way Dangalah Rani, his last and youngest wife. To say that her face was the full moon; her hair a purple rain-cloud; her complexion exactly like the pale waxen blossoms of the large-flowered jessamine; her eyes those of an antelope; her lips as red as a pomegranate bud, and that, when they opened they distilled a fountain of ambrosia; to say that her neck was like a pigeon's, her hand like the pink lining of the conch shell, her waist a leopard's, and her feet the softest lotuses; will perhaps give us dull westerns no very distinct image of her charms. To say that the staid raja became drivelling and doting in the excess of his love; that he would even have committed the unforgivable sin of slaughtering a cow, had she so commanded; and that the very excess of his love sickened the woman into indifference, if not hatred; is perhaps more intelligible. To indemnify herself for the presence of a husband who loved her and whom she did not love, Dangalah Rani lost no time in lavishing all the love of her idle soul on Matá-pala, the handsome ambassador of peace and of war, who, in his turn, preferred Lakha, one of the maids of honor; who again looked to the regent as the fountain of an honor still higher than her own, vice the king.

Now, it happened that in this city of Ujjayani, within sight of the palace, dwelt an austere Brahman and his devout wife. This couple were very pious. They fasted and refrained from drink; they stood on their heads; they held their arms for weeks in the air; they prayed till their knees were like pads; they disciplined themselves with scourges of wire; they walked about unclad in the

gold season, and in summer they sat within a circle of flaming wood; in short, they became the envy and admiration of all the second-class gods dwelling in the lower heaven; and in return for their piety a celestial messenger brought them an apple from the tree called Kalpavriksha, which would confer immortality on whomsoever should eat of it. But it was enough for only one person's immortality; it would not serve for two. At first the old Brahman was for making himself deathless; but his cleverer wife, with as much craft as good sense in her meaning, prevailed on him to refrain; and rather to get the good reward which would be sure to be given them if they presented it to the raja. So the old Brahman took it to the court, gave it to Bhartari Raja, and brought away as much gold as he could carry. The raja rushed with the apple to his young queen Dangalah Rani, saying, "Eat this, Light of my Eyes! This fruit, Joy of my Heart! will make thee everlastingly young and beautiful!" The pretty queen, placing both hands upon her husband's bosom, kissed his eyes and lips, and sweetly smiling in his face—for great is the guile of women—whispered: "Eat it thyself, dear one, or at least share it with me; for what is life, and what is youth without the presence of those we love?" But the raja, whose heart was melted by those musical words, she being always so cold and repelling—he called it coy—put her away tenderly, and having explained that the fruit would serve for only one person departed. Whereupon the pretty queen, sweetly smiling as before, slipped the precious present into her pocket and gave it to the handsome ambassador. He, wishing to please Lakha, gave it away to her; and she, seeking to rise at court by favor of the raja, presented it anew to him. And then the raja saw the full extent of his misery, and by what a round of deception the apple of immortality had come back to him. Loathing life and all its pleasures, he resolved to abandon the world, and end his days in the depth of a gloomy forest. But before he set out, he took care to cause Dangalah Rani to be summoned before him. He asked her what had become of the fruit he had given her: she replied that she had eaten it; upon which

he showed her the apple, which caused her to stand silent and aghast before him. Then, giving careful orders for her being beheaded, he washed the fruit and ate it, and went out into the jungle as a jogi or religious mendicant, no one knowing what had become of him.

This was the history of Vikram's brother, the regent, and of what passed in the royal palace during the absence of that Luminary of Heroism.

Meanwhile Vikram became weary of wandering about with his second son alone. To be sure his kingdom was well secured, though he did not know it, for Indra sent a div or giant to defend the city, and hold the throne until such time as its lawful possessor should put in an appearance. But the wandering monarch began to reflect, that this dancing about from city to desert, and from desert to forest, half clothed, and always more than half hungry, afraid of wild beasts, and at all times ill at ease, was neither comfortable for himself nor dutiful to his various wives and their several offspring. He reflected, too, that the heir-apparent would probably make the worst possible use of the paternal absence, and that the kingdom had been left in the hands of an untried man, who for aught he knew might make the worst possible use of his trust. So he resolved to return forthwith to Ujjayani, more especially as by this time he had spied out all the weak points of friends and foes alike, and had nothing more to learn. And while these considerations were pressing on him, he heard a rumor that Bhartari the regent had abdicated his viceregal throne, and gone away into the forest; which rumor decided him on the spot. So he and his son went home, and got to the city gates just as the gong was striking the mysterious hour of midnight.

But they were not allowed to enter unmolested. A huge and hideous figure starting up barred the way, demanding in a thundering voice, who were they, and where going? Raja Vikram, choking with rage at such a reception, gave his royal name and address; but the giant, div or demon, Prithwi Pala by name, commanded that he should first fight to prove his title, after which, if showing that he was really the Sun of Heroism, he might enter. The warrior

King cried "Sadhu!" wanting nothing better; and for all that the giant's fists were as large as water melons, and his knotted arms whistled through the air like falling trees; for all that the raja's head scarcely reached the giant's middle, and that the latter, each time he struck out, whooped so abominably loudly that no human nerves could remain unshaken; yet Vikram was not Vikram for nothing. Besides, the young prince aided by jumping on the div's naked toes, and sitting on his stomach when he was down; so both together they got Prithwi Pala into evil case, and the raja, sitting astride on his throat, dug both his thumbs into the monster's eyes, and threatened to make a second Polyphemus of him if he would not yield.

The giant, moderating the bellow of his voice, agreed to give the raja his life, in consideration of his own overthrow. And when the raja laughed scornfully at what seemed a mere piece of fustian, the giant, raising himself up into a sitting posture, began a solemn tale in solemn tones.

The story is too long (as long as the giant in fact) to be more than very closely condensed here, keeping to the leading lines only in so far as they relate to Vikram.

It seems that a certain jogi was Vikram's deadly enemy. He, an oilman's son, and the king, were all born in this same city of Ujjayani, in the same lunar mansion, in the same division of the great circle described upon the ecliptic, and in the same period of time. The jogi had already slain the oilman's son, and his own child; and was waiting now to compass the death of the king, in revenge for a practical joke which had been played on him in the days of Gandharba-Sena, when a pretty young woman of doubtful discretion made a promise to bring him to the court, bearing his child on his shoulder, he being then a famous devotee renowned throughout the universe for his austerities. When the saint found that he had been simply taken in by a designing little witch, and made into a court jest—that he had lost the fruits of his austerities to create a laugh among addle-pated courtiers, he cursed them all with terrible curses; took up his child again on his shoulder, and went back into the forest—where he

slew him as his first offering of expiation. He then slew the oilman's son, suspended him head downwards from a mimosa tree in a cemetery; and was now designing to do the same kind office by Vikram. The oilman's son he had made into a baital or vampire. Wherefore said the giant to Vikram, among other useful counsels, "Distrust them that dwell amongst the dead, and remember that it is lawful and right to strike off his head that would slay thee." Then Prithwi Pala disappeared; and the king first feeling his bones to make sure they were all sound, went into his own again.

By and by, after the colored powders had been flung, the feasts made, and the rejoicings of Ujjayani at the return of the lawful ruler had become a little moderated, there came into the city a young merchant, called Mal Deo, with a train of loaded camels and elephants, and the reputation of immense wealth. He came one day into the palace court, where the king was sitting dispensing justice, and gave into his hand a fruit, which he had brought with him. He then spread a prayer carpet on the floor, remained a quarter of an hour, and went away. But the king was wary. The giant's warning remained in his mind, and he gave the fruit to his maître d'hôtel, with orders to preserve it carefully. Every day the young merchant came to the court in the same way, and every day brought one single fruit. One day the king was in the royal stable when Mal Deo arrived with his offering; and as Vikram was thoughtfully tossing it in the air it fell from his fingers to the ground. Then the monkey, who was tethered among the horses to draw calamities from their heads, snatched it up and tore it open, when a ruby of such size and water came out as astonished all beholders.

The raja, now thoroughly angry and suspicious, asked Mal Deo what he meant by presuming to bring such costly gifts. On which the merchant demurely quoted the Shastras, where it is enjoined on men not to go empty-handed into the presence of rajas, spiritual teachers, judges, young maidens, and old women whose daughters they would marry. Mollified by the glib religiousness of the young man, and not displeased at finding

that he had in his possession some half dozen or more of these rubies, which were of such value that the whole revenues of the kingdom could not purchase one, Vikram gave Mal Deo a robe of honor; then graciously asked him what he could do in return for such more than regal generosity? On which Mal Deo replied: that he was not Mal Deo a merchant, but Shanta-Shil, the devotee; and that all he asked of the king in return for the rubies, was to come to him on a certain moonless night, to a cemetery where he was going to perform incantations which would make the Eight Powers of Nature his. He was to bring with him his arms, and young Dharma Dwaj, his son, but no followers.

Vikram at first almost started when he heard of the cemetery, remembering the giant's words, but knowing now with whom he was dealing, composedly answered that he would come to the accursed place; and with this promise they parted.

The moonless night indicated by the jogi came. It was a Monday, and the king and his son passed out of the palace gates, and through the sleeping city to the abode of the dead. Arriving there, after a most uncomfortable and horrifying walk, they found Shanta-Shil, hideously painted, and nearly naked, sitting by a fire, and surrounded by demons and every loathsome and terrifying form that could be summoned from the face of the earth or the darker regions below, playing on a skull with two shank bones, and making a music therefrom as frightful as his person. Father and son, nothing daunted, walked boldly forward and seated themselves by the jogi. They waited for some time in silence, and then the raja asked the devotee what commands there might be for them? Shanta-Shil desired them to go to a certain place where dead bodies were burned, and where, hanging from a mimosa tree, was a body which he was to bring to him immediately. So Vikram and his son rose up and departed for the place.

It was an awful night, and they had an awful walk, even worse than before, with company neither to be imagined nor described. At last they came to the burn-

ing place; where they suddenly sighted a tree which, from root to topmost bough, was a blaze of crimson flame. And hanging from this, head downward, was a nondescript thing, more like a flying fox than anything else: icy cold, and clammy as a snake; whose only sign of life was the whisking of a ragged little tail like a goat's. This was the oilman's son—the baital or vampire. After tremendous struggles and repeated failures, but by the grace of not knowing when he was beaten, and never giving in, Vikram at last conquered, the vampire saying on the seventh effort, "Even the gods cannot resist a thoroughly obstinate man," as he resignedly suffered himself to be thrust into a bag improvised out of the king's waist-cloth, and slung across his shoulders *en route* for the jogi, and the subjection of the Eight Powers of Nature. But on the way, being a loquacious demon, the vampire proposed to tell the king some stories, giving him good-naturedly a prefatorial bit of advice, never to allow himself to be entrapped into giving an answer or an opinion, for if he should fail in this, then assuredly would he, the baital, slip back to his mimosa tree, and all the labor of the capture would have to be repeated. Then he began his stories.

Not being able to epitomize even one of them, we refer our readers to the book itself. There are eleven of them, for eleven times did the Sun of Heroism suffer himself to be entrapped into an answer, whereby the baital was able to wriggle himself free from his bag, and hang himself up by his toes again from a high branch of the burning mimosa tree. But the twelfth time Vikram had learnt a little discretion, so the journey was duly completed, and the baital flung into the jogi's magic circle. We will say no more. How Vikram fared, and how the jogi fared, and who slew whom, that is, which was able to "breakfast on his enemy ere his enemy could dine on him," is it not all to be found within the black and red covers which Ernest Griset has so quaintly adorned? All that we would say is this: if such a story as we have epitomized can be got out of the prologue, what may not be expected from the body of the book?

Macmillan's Magazine.

ORIENTALISM IN EUROPEAN INDUSTRY.

BY SIR M. DIGBY WYATT, M.A., ETC.

As steam and railways, and the type of man that steam and railways engender, push themselves further and further ahead into those profundities of Oriental life, which, but for such intrusion, might—so far as we can judge—have remained unchanged for centuries to come, the quickening life of Western activity and enterprise shakes to their very vitals the constitutions of the Eastern races.

That rude intrusion of European energy which took originally the form of trade, and which, ere long, assumed that of conquest, must have rudely broken in upon the uninterrupted tide of despotic rule which had for many centuries held unlimited sway in India, in China, and Japan.

While such intrusions served to introduce European life and energy—and too often European passions and vices—to the peoples of the East, they served also to rend aside that thick veil which had hidden almost entirely from Europe arts and industries of almost unparalleled originality and beauty. The result of continued intercourse has been to effect a peculiar interchange of mutual respect.

By a principle, as it were, of convection, the colder temperature of Europe has warmed under the Eastern sun into admiration for arts which it at first deemed magnificent, but uncultured. Those, on the other hand, who were originally tolerated as but little less than savages by the Celestials, have so far made good their footing as to command unlimited respect for the power of their arms and the cheapness of their cottons. Their steam and their cannon have forced an entry, not only into the country but into the intelligences of the rulers of China and Japan, as they had previously done into those of the continent of India.

History has always shown us that such counterchanges of national characteristics have been intensely slow in their commencement, and very rapid in the later stages of assimilation; and hence we may observe that, for centuries after

the original opening up of the East by European countries, the influence of the abundant products brought to us from India scarcely in any wise affected the corresponding industries of Europe.

As traveller after traveller, and ship after ship, brought to Portugal, to Holland, and to England beautiful specimens of the textile fabrics of India, and of the ceramic products of China and Japan, gradually and slowly an inclination arose to imitate those classes of products. The desire to rival the shawls of Cashmere has helped to create and develop much of the trade of Norwich, of Glasgow, and of Paisley.

Under Napoleon I. in France, the great house of Ternaux embarked with success in the same class of industry; while admiration for the beautiful porcelain of China and Japan encouraged the Dutch to imitate those products in the best samples of the Delft ware, and the Saxons in the earliest products of Meissen and of Dresden. The French, in their earliest porcelain manufacture, limited their imitation to the desire to equal or excel the body of the Oriental china rather than its appearance or ornamentation. We, in England,—probably from a more popular appreciation of the excellences of the ordinary porcelain brought to us by the East India Company's trade,—in some of our earliest Staffordshire, and especially in our early Worcester, china, manufactured imitations of Chinese production which it is sometimes very difficult to distinguish from the original they imitated. Still, these reproductions were to a great extent mechanical, and we were loath to admit the beauty while we commended the utility of the object imitated. Whilst admiration was reserved for reproductions of ornament based upon the antique, and upon the best remains of the period of the renaissance of the antique, every one remained all but blind to the value of the East as a source of inspiration for industrial designers.

The first step to renewed activity and greater liberality in the theory of in-

dustrial design is, I think, to be recognized through the archaeological movement in favor of a recognition of the value of the mediæval system of dealing with form. As that mediæval system had unquestionably derived much inspiration during the period of the Crusades, and indeed during the greater part of the Middle Ages, from contact with the products of the East, which stood out with conspicuous excellence during the dark ages of European mediævalism, so the profound study of that system carried back the attention of students to those original sources of inspiration.

The *prestige* of classical tradition and the French supremacy in matters of taste once broken down, prejudices were removed which had previously limited the range of industrial art; and men arose, like Owen Jones and Pugin in this country, and Texier, Coste, Clerg t, Girault de Prangey, and Flandrin in France. By such men the public of both countries were made acquainted with sources of beauty, and theories for the creation of beauty, which greatly extended the range of facilities with which it was their privilege to arm the designer to enrich industrial art with new and beautiful forms, based and systematized upon their interpretation of Oriental tradition.

The influence of these and other pioneers in the good work first manifested itself emphatically in the face of Europe at the Great Exhibition of 1851. The collection of Indian manufactures contributed from every part of India took the world of European manufacture by storm, and excited a general and previously unknown admiration for all the products of the East. The comments made by Owen Jones upon those products tended much to a codification of the principles upon which their beauty mainly depended; while the technical and historical details concerning them, furnished by the late Dr. Royle, provided us with the fullest information as to the means by which, and the circumstances under which, the most beautiful of the objects exhibited had been manufactured.

After the close of the Exhibition of 1851, the best of the products specially forwarded from India for that Exhibi-

tion were reserved to supplement the small collection previously deposited in certain apartments of the old India House in Leadenhall Street.

The excitement caused throughout India by the admiration which the products forwarded from that country received at the Exhibition of 1851 culminated in the contribution to the Exhibition held in Paris in 1855 of an even more complete and extensive series of illustrations of Indian manufacture than that forwarded to Europe in anticipation of 1851.

The Indian portion of the Exhibition of 1855, which I had the good fortune to be employed by Colonel Sykes, the then chairman of the East India Company, to arrange with the late Dr. Royle, excited the greatest enthusiasm amongst the principal designers of French industry. Artists were continually sketching and drawing in the Indian department, and the writers who principally chronicled the *memorabilia* of that Exhibition dwelt with the utmost fervor upon the beauty of the Indian patterns.

In France, it was especially upon the tissues of Lyons that the Indian department of the Exhibition of 1855 exercised the most potent influence.

After the close of that Exhibition, as on the occasion of the previous Exhibition, the best of the Indian goods were selected to be added to the India House Collection, which having at that date considerably outgrown the space available for its display, induced the directors to turn their attention to the conversion of certain additional rooms into a tolerably satisfactory museum. In this instance, again, I was employed by the Company to effect the requisite enlargement and refitment of their old museum galleries. The work was a difficult one, as a number of old offices and a couple of dwelling-houses afforded by no means satisfactory elements out of which to contrive an industrial museum. The whole was, however, so completed as to admit of a tolerable classification, and the exhibition of an extensive series of samples of all the leading manufactures of India, under fair conditions of lighting and accessibility for the purpose of study and comparison. On the completion of the new museum it was visited by thousands of persons,

and amongst them numbers of students and practical manufacturers, who began to incorporate into our current system of production imitations, especially in textile fabrics, carpets, &c., of the best Indian goods exhibited by the Court of Directors of the East India Company.

The necessity for the abandonment of the old East India House and the removal of its contents to the west end of London, coupled with the death of Dr. Royle, caused some interruption in the work of usefulness effected by the permanent exhibition in London of these beautiful products. The intelligence and activity, however, of Dr. Forbes Watson (Dr. Royle's successor), and the growing importance to our country of affording to its manufacturers the means of becoming practically acquainted with the arts of India, soon remedied the ill effect of the temporary interruption to the progress of appreciation of Indian designs in English industrial art, caused by the removal above alluded to.

Having received the necessary authority from the then Secretary of State for India in Council, I was permitted to fit up Fife House, Whitehall, as a temporary museum, in which, on Dr. Watson's completion of the arrangement of the magnificent collection of products belonging to the Secretary of State in Council, a still greater concourse of inquiring visitors flocked to the museum established in that building than had previously visited the old museum at the India House.

I am not aware that in this country much direct reproduction or imitation of Oriental arts has taken place; but I am certain that their influence upon surface decoration has been of the very utmost importance. Their especial value has, I think, consisted in the admirable illustrations they furnish of the possibility of obtaining repose and quiet beauty by the right employment of the most brilliant coloring when broken up into minute and properly contrasted forms, and arranged for flat surfaces upon what is technically known as a "flat" system of design.

It is the especial reasonableness of the Eastern treatment by Arabians, Indians, Chinese, or Japanese alike—of every material pressed into the service of industrial art, which has specially tended

to correct the vagaries of industrial artists. Until it had been shown to them by the unquestionable merits and success of Oriental products, that beauty in manufacture might be effected without involving any misapplication to it of the fine arts, their only idea of raising the character of design of any piece of manufacture appears to have been limited to the addition *totit* of an introduction of pictorial elements which disfigured more than they adorned.

The Exhibition of 1851 overflowed with illustrations of this tendency, and sculpture was no less abused in its forced association with ceramic art and furniture than painting was in textiles.

Who does not remember the Newfoundland-dog carpets and rugs, the portraits of the Queen and Prince Albert worked into every class of fabric, and the fox, and dog, and ballet-girl shirts in the well-known Chamber of Horrors at Marlborough House?

From the productions of Oriental taste all such anomalies were banished, and in them the artists preserved the utmost gorgeousness of decoration, which was never rendered obtrusive, and was always effected by means harmonizing with the class of product to which they were applied, or into which they were incorporated.

As serious thought became applied to the elaboration of a judicious system of teaching, upon which the Schools of Design throughout the country required to be organized, the common-sense system of the East grew in our estimation, and became established and adopted in our practice. We work now in almost all departments of production, especially in carpets, rugs, tiles, floor-cloth, mural decoration, paper-hangings, shawls, and to some extent in jewelry and mosaics, in the spirit if not in the forms of Oriental art. Its influence is a growing and, as I believe, a highly beneficial one.

It was about the year 1855 that the practice of collecting, which has now grown to so extraordinary a mania in France, acquired a sudden and very extensive development. Under the old *régime* in that country, collections had been formed by many distinguished connoisseurs, who had exhibited a very high appreciation of the value and rarity of beautiful specimens of Indian and other

Oriental produce. Of such collections many catalogues are still extant, and some of them contain items which cannot but excite the utmost envy and cupidity of the collectors of the present day. The finest and oldest porcelains and lac of China and Japan were especially appreciated, and the jades and precious stones of India, the enamels of Persia, and much beautiful wood and ivory carving from the East, generally figure in the foremost line.

Such collections were, however, rudely broken up and dispersed during the great French Revolution, and the spirit of refined admiration for beautiful manufacture, which certainly existed in a very strong form during the reign of Louis XVI., entirely died out,—to be revived only of recent years, and through the influences to which allusion has been made.

The opening-up of China and Japan, and the greater facilities for travel in India and Asia Minor, and indeed in the East generally, brought new material of a most interesting kind into the market, and the collectors of the nineteenth century have been in no wise slow to appreciate the value of the precious spoils, the new types of form, and new processes of manufacture illustrated by the rarest and most beautiful of the curiosities brought to Europe, as cultivated travelers returned from long and adventurous wanderings.

Again in 1862 in this country, and lastly in 1867 at Paris, the artists who had been foremost in renovating industrial art have enjoyed ample opportunities of becoming acquainted with the most precious samples of Oriental industries; and a general appreciation of the value of such products has gradually grown into a most prominent position.

While I believe that the influence exercised by these exhibitions of Oriental manufactures has been similar and about equal upon the artists and most cultivated classes of the two countries, their effect upon the working classes has been very dissimilar.

On the workman in England, owing, I fear, to his lower intellectual organization and development, they seem scarcely to have acted at all; while in France they have succeeded in causing an imitation and, as it were, re-creation of

technical processes of manufacture destined to have a most important influence upon national production. At the present time, in France, there is no process of Oriental damascening or enamelling which has not been perfectly revived by the Parisian workman. Those curious specimens of Japanese metal work which, in small objects—such as brooches, clasps, chains, &c.—show the Japanese to possess powers of combining and inlaying various metals by methods unknown to, or at least unpractised by European artists, have been perfectly imitated; and MM. Barbedienne and Christofle have shown us damascening and enamelling, both on the *champ-lère* and *cloisonnée* principles, of as perfect elegance and beauty as the finest specimens from Seinde, from Yeddo, or Peking.

So sensible have the French been of the great progress made by this country in industrial art in recent years, and of the value and influence of the teachings to be derived from institutions such as that of South Kensington and the Crystal Palace, and from the formation of museums (such as those of the Department of Science and Art and of the Secretary of State in Council of India), that their foremost writers have lost no opportunity of stimulating their Government to the steady provision of similar facilities for the training of industrial designers and art-workmen.

Nor have they regarded the action of Government as sufficient for effecting all their requirements. Acting upon the principles of the old adage,

He who by the plough would thrive,
Himself must either hold or drive,

the leading manufacturers and artists of France, with the co-operation of many of the most distinguished connoisseurs of that country, have formed themselves into an association, which they have called "The Central Union of Fine Arts applied to Industry."

The seat of this society in Paris is in one of the fine old houses of the Place Royale, where may be found a museum and library open gratuitously to workers every day from ten o'clock in the morning to ten o'clock at night. The system of this institution comprises special courses of lectures and discussions on various branches of the subject of the

application of art to industry. Its principal public manifestation of activity takes the shape of periodical exhibitions including three classes of objects, viz., the premiated productions of the principal schools of design in Paris and the Departments; special museums consisting of works of art borrowed from private collections; and current articles of manufacture representing the most interesting applications of art to industry. In short, as the programme of the society states, its aim is to seek to raise by every possible means the level of industrial art in France, and to counterbalance, by an activity independent of the State and springing from the individual initiation of those most practically interested in the success of art manufacture, the influence of great establishments founded with the same ends and at vast cost in other countries.

The previous exhibitions of this society have been most interesting; but their last, held during the autumn of last year, displayed a feature especially interesting, as exhibiting the intense appreciation which the French have recently manifested for Oriental art. In eight great galleries the council of this society inaugurated an Oriental museum of the utmost importance and beauty, the contents of which sufficed to show the zeal and energy with which collectors have during the last twenty or thirty years been steadily accumulating in France the rarest and most magnificent illustrations of the arts and industries of the East. Of these eight apartments, three were devoted to Chinese and Japanese art, one to that of India, a fifth to Persian art and that of Asia Minor and the Greek archipelago—or rather, so much of the art of the two last-named districts as denotes an influence independent of that usually found in those countries, viz., one derived from classic sources.

The limits of this notice do not permit me to dwell upon the beauty and value of the articles contained in these galleries, and I may be permitted possibly in a future special notice to repair this omission; but I desire now to note the fact that these objects were contributed by the most enlightened connoisseurs of France. Such men really constitute the leaders and chief patrons of the most advanced current industry—a circumstance which

gives exceptional importance to their thus manifesting their earnest appreciation of the value and beauty of such masterpieces of industrial art.

That which was to the practical man perhaps the most interesting feature of this exhibition was his being able to pass from this portion of it to the main area of the building, in which the contemporary goods of the best Parisian manufacturers were displayed, and to observe in them the active reproduction of the best features of the same art as that which formed the staple of the Oriental Museum. In the latter, for instance, were displayed some of the most beautiful of the ancient lamps of the Caliphate, enamelled upon transparent glass—objects of the greatest rarity and beauty. In the former, at the stall of M. Brocard, lamps of original design and of equal beauty in all respects were to be seen, and to be bought at reasonable prices. In the museum, the Faience of Persia, with its hand-work processes of decoration, was to be met with in every variety of beauty; while, in the exhibition, at half-a-dozen stalls at least, objects of a corresponding nature were displayed for sale. In this branch of industry the productions of MM. Bouvier, Deck, and Collinot were alike excellent in originality, freshness of form and design, and perfect success in manufacture. In all of these any stereotyped reproduction seemed to be avoided as fatal to beauty. Every object was specially designed, and, generally speaking, actually executed by the designer; being, on that account, instinct with a life and vivacity converting the object of industrial manufacture into one of fine art.

The Burlington Fine Arts Club of London have just organized a corresponding museum, on a small scale, to that in the Champs Elysées, and this will be opened in a short time at the rooms of the club in Piccadilly. It will be hard to excel the beauty and rarity of the objects contributed on loan to the French collection, and unfortunately the limits of space and light in the apartments of the Burlington Fine Arts Club will restrict their selection from the abundant materials available. Possibly some day the voice of an intelligent public opinion both at home and in India will demand from the Indian Government in this coun-

try the establishment of a museum far exceeding in extent and importance that which has just been so well arranged by Dr. Forbes Watson in the upper story of the new India Office.

Meanwhile the policy of the Secretary of State in Council of India has been to provide, for the use of the great centres of industry in this country, selections of those Indian art manufactures which are likely to be found most useful in each locality. Such a collection formed one of the greatest attractions at Manchester, and again at Leeds; and, more recently, there has been lent to the town of Birmingham a series of illustrations of Indian art which has proved of the utmost utility and popularity. I observe from an interesting statement, drawn up by Mr. W. C. Aitken (a well-known and most active promoter of the best interests of industrial art at Birmingham), that, during the three months from November 11, 1869, to February 12, 1870, the average number of daily visits of artisans and others to the Corporation Free Art Gallery, in which the Indian goods are now

placed, and which, before the earliest of those dates had amounted only to 143, has been raised to 324; and after its three months' exhibition the collection is found to excite an even greater amount of curiosity and attention than it did when it was first opened.

Mr. Aitken has drawn up an exceedingly able popular catalogue of this exhibition, pointing out, with special reference to the contemporary art industry of Birmingham, those features of a technical nature, and as elements of design, which in the objects shown are most likely to be useful to the Birmingham artisan.

In this collection, and indeed in all that I have ever seen of Oriental products, the predominant characteristic is unquestionably that which was so well urged by Mr. Owen Jones, with reference to the Indian collection of the Paris Exhibition of 1867. In that display he observed: "We find no struggle after effect; every ornament arises quietly and naturally from the object decorated, inspired by some true feeling, or embellishing some real want."

Chambers's Journal.

BETTER-HALF BARTER.

IN savage lands, women are so far merchandisable articles that a young man anxious of setting up an establishment of his own is expected to give the papa of the lady of his choice something handsome in the way of cattle, or whatever may be the favorite currency of the country, as an equivalent for the loss of her services. A custom somewhat inconvenient in its results, leading, as in Kafirland, to much discontent among the young men, from the rich old men buying up all the wives, as they are able to outbid younger wife-seekers—an evil the legislature of Natal has sought to check by fixing the price of a wife at twenty cows. Even in civilized communities, the selling of daughters is not entirely unknown. An English lady travelling in Portugal was horrified by a wealthy Moor offering her a good round sum for her beautiful daughter, an incident evoking from the narrator the remark: "How we revolt from appearances instead of realities. A proposal

to buy her daughter would shock any European parent. But if a man of superior rank or fortune offered himself, though his intellect, morals, and appearance were all contemptible, would there be the same horror entertained of selling her? Certainly, in openness and honesty, the savages have the advantage; and it must be owned that they never seem to entertain the idea of selling a woman after they have made her a wife.

That idea is one, however, that has been entertained and carried out often enough in England; and what is more strange still, the perpetrators of the offence appear to have believed they were doing nothing contrary to the law of the land when divesting themselves of a partner of whom they were tired, by such a simple and inexpensive mode of divorce. A correspondent of *Notes and Queries* attempted to account for the popular belief in the legality of transactions of the sort, by saying it sprang

out of the long war ending in 1815, when many soldiers and sailors returning home, found their wives, supposing they were dead, had re-married. To get out of the difficulty arising from the unwelcome appearance of so many Enoch Ardens, it was declared to be lawful to sell the wife in open market, when the second husband made his marriage good, by purchasing her, and the first one became free to marry again. We fancy the writer in question would find it difficult to prove that such dealings were ever declared lawful; and unfortunately for his theory, disposing of a wife by sale was practised in England long before the era of Napoleonic wars.

In Grimaldi's *Origines Genealogicae* is to be found the following curious document, dating back more than five and a half centuries: "To all good Christians to whom this writ shall come. John de Camoys, son and heir of Sir Ralph de Camoys, greeting.—Know me to have delivered and yielded up, of my own free will, to Sir William de Paynel, Knight, my wife, Margaret de Camoys, daughter and heiress of Sir John de Gatesden. And likewise to have given and granted to the said Sir William, and to have made over and quit-claimed all goods and chattels which the said Margaret had or may have, or which I may claim in her right; so that neither I, nor any one in my name, shall at any time hereafter be able to claim any right to the said Margaret, or to her goods and chattels or their pertinents. And I consent and grant, and by this writ declare that the said Margaret shall abide and remain with the said Sir William during his pleasure. In witness to which, I have placed my seal to this deed before these witnesses: Thomas de Depeston, John de Ferringo, William de Icombe, Henry de Biroun, Stephen Chamberlayne, Walter le Blound, Gilbert de Batecumbe, Robert de Bosco, and others." Despite its signing, sealing, and witnessing, this precious deed was declared illegal and invalid by parliament itself. In later times, Lord Hardwicke had occasion to issue an information against a gentleman for disposing of his spouse by private contract; but what came of it is not recorded. Another instance in which formality was invoked occurred in 1773, when three men and

three women went to the *Bell Inn*, Eg-baston Street, Birmingham, and made the following entry in the toll-book kept there: "August 31, 1773. Samuel Whitehouse, of the parish of Willenhall, in the county of Stafford, this day sold his wife, Mary Whitehouse, in open market, to Thomas Griffiths of Birmingham; value one shilling. To be taken with all her faults. Signed, Samuel Whitehouse, Mary Whitehouse. Voucher, Thomas Buckley, of Birmingham."

In 1803, one Smith took his wife from Ferrybridge to Pontefract, a distance of twenty miles, and put her up for sale in the market-place; the biddings were started at twelve pence, and she was knocked down at eleven shillings, the spirited purchaser leading his bargain away by a halter, amid showers of mud and snow from the spectators. A fellow at Tuxford let his wife and child go for five shillings; and in 1859 a similar scandalous exhibition took place at Dudley, when the wife was put up by auction at three-halfpence, and sold to the highest bidder for the sum of sixpence.

In the above cases, the wives seem to have fallen to chance buyers; but generally the affair was a prearranged one between the buyer, the seller, and the sold, who seem to have salved their consciences by going through the ceremony of a mock-auction. On Valentine's Day, 1806, a man named Gowthorpe exposed his wife for sale in the market at Hull, at one o'clock in the day; but the mob interfered with such effect that he was compelled to withdraw her. However, in the evening, he again brought her out, and sold her for twenty guineas to a man who had lodged at his house for some years. In 1764, a man and his wife got into conversation with a grazier at Purham Fair—a conversation resulting in the man offering to exchange his better-half for a bullock, if he might choose one for himself from the drove. The grazier agreed, and the lady readily acceded, and the next day was duly delivered up, with the inevitable halter round her neck, the husband taking his bullock away, and afterwards selling that too for six guineas. In 1844, a Glamorganshire laboring man, after living very unhappily with his wife for some time, discovered that she sought solace in the affections of a neigh-

bor. To make the best of a bad matter, he called upon his rival, and after an amicable discussion, agreed to sell the cause of it to him. The following Saturday, he accordingly appeared in the market with his wife, attired in a new black gown and a white bonnet, with a halter round her neck, and then and there handed her over to her paramour upon payment of two shillings and sixpence—in this instance an unvirtuous wife proving half-a-crown to her husband; and we are told the purchaser always boasted it was the best bargain he ever made in his life. Not so successful in their arrangements were another couple, whose disappointment was made public in the *Stamford Mercury* of the 26th November, 1858: "On Monday, a disgraceful exhibition—the attempted sale of a wife—took place in front of a beer-house at Shearbridge, Little Horton, near Bradford. The fellow who offered his wife for sale was Hartley Thompson. She was a person of prepossessing appearance. The sale had been duly announced by the bellman, and a large crowd assembled. The wife appeared with a halter, adorned with ribbons, round her neck. The sale, however, was not completed; the reason for this being, that some disturbance was created by a crowd from a neighboring factory, and that the person to whom it was intended to sell the wife was detained at his work beyond the time. The couple, though not long wedded, have led a very unhappy life, and it is said they and their friends were so egregiously ignorant as to believe they could secure their legal separation by a public sale." In 1863, a workman at the Cyfarthfa Ironworks sold his wife to a fellow-workman for two pounds ten shillings in cash, and ten shillings to be spent in drink. The wife appeared more amused than pained by the performance, and went home with her purchaser, after enjoying her share of the beer.

One fickle wretch was deservedly punished. Having parted with his spouse for a quarter of a guinea and a gallon of beer, he was disgusted to hear, a few weeks afterwards, that she had, by the death of a relative, come into a little fortune of two hundred pounds. Only a few years ago, a bachelor in easy circumstances, living at Dittisham, a vil-

lage on the banks of the Dart, took a strong fancy for the wife of one of his neighbors; and after some negotiation, it was agreed, between him and the husband, that he should take the lady for fifty pounds, her baby being thrown into the bargain; and the newly-mated pair soon set off on a sort of wedding-trip. The husband, however, found he had been sold, for, after having delivered up his wife, his customer went off without paying for her, and the deluded scamp was left lamenting. In 1766, a carpenter, who had sold his wife, hung himself upon her refusing to return to his repentant bosom, on the plea, that she was perfectly satisfied with the result of his trading.

The women concerned in these singular transfers seldom seem to have made any objection. We have only met with two instances of the lady proving rebellious. Mrs. Waddilove was one of these exceptions to the rule. Her husband, an innkeeper at Grassington, agreed to dispose of her to a Mr. John Lupton upon payment of one hundred guineas—the highest figure a wife is recorded to have fetched—the latter depositing one guinea in earnest of the bargain. When he went the following day to tender the remaining ninety-nine guineas and receive the fair dame, to his dismay, she flatly refused to allow herself to be delivered up; and the disappointed wife-buyer was obliged to depart as wifeless as he came; while, to render his discomfiture more mortifying, mine host declined to refund the earnest-money. The husband was the sufferer in our second instance. He was a young man hailing from Bewcastle in Cumberland, who, finding it impossible to live comfortably with his spouse, resolved to give somebody else the chance of doing so, by disposing of her by public auction. Not being successful in finding a customer in his own neighborhood, his wife suggested that he should try Newcastle. They went there; and the wife so contrived matters that certain gentlemen employed on his Majesty's service—very pressing service—introduced themselves to the husband, and he found himself one fine day safe on board a frigate bound for a long cruise in distant waters; and so the tables were turned, and instead of getting rid of his wife, she got rid of him.

By law, the selling of a wife counts as a misdemeanor; and in 1837, one Joshua Jackson was convicted of the offence at the Sessions in the West Riding of Yorkshire, and got a month's hard labor for his pains.

A young and sprightly widow once appeared at a Bath masquerade with a paper pinned to her bosom bearing these lines:

To be let on lease for the term of my life,
I, Sylvia J——, in the shape of a wife:
I am young, though not handsome, good-natured,
though thin—

For further particulars pray inquire within.

In the *Gentleman's Magazine* for 1788, the taking a lady on lease is treated as a sober reality; a Birmingham correspondent of Mr. Urban's writing: "Since my residing in this town, I have often heard there is a method of obtaining a wife's sister upon lease. I never could learn the method to be taken to get a wife upon lease, or whether such connections are sanctioned by law. But there is an eminent manufacturer in the vicinity of this town who had his deceased wife's sister upon lease for ninety years and upwards; and I know she went by his name, enjoyed all the privileges, and received all the honors due to the respectable name of wife." Birmingham would appear to have a speciality for extraordinary contracts of this nature. In 1853, a woman who accused her husband of assaulting her, in giving evidence before the magistrates of that town, said she was not living with the offender, because he was leased to another woman. For the satisfaction of the bench, the agreement was produced; it ran thus: "Memorandum of Agreement made and entered into this second day of October, in the year of our Lord 1852, between William Charles Capas, of Charles-Henry Street, in the borough of Bir-

mingham, in the county of Warwick, carpenter, of the one part, and Emily Hickson of Hurst Street, Birmingham, aforesaid, spinster, of the other part. Whereas, the said William Charles Capas and Emily Hickson have mutually agreed with each other, to live and reside together, and to mutually assist in supporting and maintaining each other during the remainder of their lives, and also to sign the agreement hereinafter contained to that effect. Now, therefore, it is hereby mutually agreed upon, by and between the said William Charles Capas and Emily Hickson, that they shall live and reside together during the remainder of their lives, and that they shall mutually exert themselves by work and labor, and by following all their business pursuits to the best of their abilities, skill, and understanding, and by advising and assisting each other, for their mutual benefit and advantage, and also to provide for themselves and each other the best supports and comforts of life which their means and income may afford. And for the true and faithful performance of this agreement, each of the said parties bindeth himself and herself unto the other finally by this agreement, as witness the hands of the said parties, this day and year above written." For this precious document, five-and-thirty shillings had been paid to some unscrupulous limb of the law. It may be hoped it is unique; but one must allow the agreement, so far as it goes, is a fair one, and is just such a deed as may be expected to be drawn up between man and wife in the happy coming time when the clamorous preachers of the equality of both sexes of man shall have altered the laws affecting matrimony to the utmost of their desires, and established connubiality upon a proper commercial basis.

HENRY WARD BEECHER.

BY THE EDITOR.

HENRY WARD BEECHER was born on the 24th of June, 1813, at Litchfield, Conn., where he also spent his childhood until the completion of his tenth year. His father was Dr. Lyman Beecher, one

of the most vigorous intellects that New England has produced, and one of her most celebrated divines; but in those early days the rewards of the Church were not what they are now, and the

scanty salary of a village pastor could afford but few opportunities of leisure and education to one of a family of ten children. The elaborate machinery of common schools, such as we know at present, were then unheard of; and though he was sent early to a certain "Ma'am Kilbourn," whence he graduated to the district school, it is probable that the principal advantages enjoyed by Mr. Beecher at this time were the natural influence of such a father's society, and that of his cultivated elder sisters. Mrs. Stowe, in an excellent biographical sketch in her work on the "Men of Our Time," gives an interesting outline of his early childhood, and also a glimpse of an enlightened New England household of those primitive times, before the advent of latter-day ideas had consigned them to history. "In those days none of the attentions were paid to children that are now usual. The community did not recognize them. There was no child's literature: there were no children's books. The Sunday-school was yet an experiment, in a fluctuating, uncertain state of trial. There were no children's days of presents and *fêtes*—no Christmas or New-Year's festivals. The annual Thanksgiving was only associated with one day's unlimited range of pies of every sort—too much for one day, and too soon things of the past. The childhood of Henry Ward was unmarked by the possession of a single child's toy, as a gift from any older person, or a single *fête*. Very early, too, strict duties devolved upon him; a daily portion of the work of the establishment, the care of domestic animals, the cutting and piling of wood, or tasks in the garden, strengthened his muscles and gave vigor and tone to his nerves. From his father and mother he inherited a perfectly solid, healthy organization of brain, muscle, and nerves; and the uncaressing, let-alone system under which he was brought up gave him early habits of vigor and self-reliance."

It will not surprise those who are acquainted with the physiology of brain-power to learn that the future logician and orator was generally considered a dull child, that he had none of those flashy and superficial qualities which pass in children for intellectual brilliancy; but to those who have been brought into

contact with his fresh, breezy, large, and vigorous nature it will certainly seem strange to be assured by Mrs. Stowe, that in childhood he had "a natural disposition to yearning and melancholy." It was not until youth that the propensity to joke and his exuberance of animal spirits were developed, and even then the underlying stratum of his nature was a deep moral earnestness which manifested itself in his voluntary reading, and in all the struggles of his earlier years. No man living, probably, has a more hopeful, healthful, and joyous temperament than Mr. Beecher's now; but, more happily than is the case with most men, it seems to have come with the widening of knowledge, and a larger experience of life.

At the age of ten, Henry Ward was sent to a private school in Bethlehem, kept by a Mr. Langdon, where he remained about a year, and was then committed to the care of his eldest sister, Miss Catherine Beecher, who was teaching a young ladies' school in Hartford. "After about six months," to quote Mrs. Stowe again, "Henry was returned on his parents' hands, with the reputation of being an inveterate joker, and an indifferent scholar."

When he was about twelve, his father, Dr. Beecher, removed with his family to Boston, and here, after a time, the young Henry, unaccustomed to the cramped restraints of city life, was seized with a severe attack of that going-to-sea mania, which seems as inevitably a part of every boy's experience as the measles. In order to divert his mind from this notion he was sent to Mount Pleasant, in Amherst, ostensibly to fit himself for a naval career, but really to prepare for college. In due time he was entered at Amherst College, whence he graduated in 1834.

Already, before the close of his college career, he felt himself called to the ministry, and entered upon its preliminary labors. His mind being powerfully impressed at a revival in Amherst, he was received by his father into the communion of the church, and entered at once upon a course of theological study, besides conducting temperance and prayer meetings in the vicinity of the college. In 1832, Dr. Beecher had accepted the presidency of Lane Seminary, and removed to Cincinnati, whither Henry

Ward followed him immediately upon the termination of his college course. Here, under the direction of Dr. Beecher and Prof. Stowe, he finished his studies, was ordained, and accepted a call to Lawrenceburg, Indiana. After a residence of two years he was invited to take charge of a church in Indianapolis, where he labored for eight years. It was during his ministry here that Mr. Beecher first made that distinctive reputation which he has maintained and extended ever since. The genial character of his religious doctrine, his sympathy with all the generous and liberal tendencies of the age, and his familiar, colloquial manner of delivery and illustration, were at that time an altogether novel reaction, in a Christian pulpit, from the stiff, gloomy Calvinism which had so deeply impressed itself upon religion in America; and he brought to his work a profound knowledge of human nature, such as is not too often found in our doctrinal expounders. His "Lectures to Young Men," delivered at this time in Indianapolis, and since republished, exhibit a moral fearlessness, and a thorough knowledge of the precise nature of the evils that he had to combat, which it would be difficult to match anywhere in the literature of Christian morals.

In 1847 Mr. Beecher received a call to Plymouth Church, then just founded in Brooklyn. Many ties had been contracted during his long ministry in the West, and his robust nature felt an instinctive sympathy with the vigorous civilization which had gradually but effectually rooted out the turbulence of frontier life, but which had not yet settled into the stereotyped formalism of the older States. The wider field which the new parish would offer to his labors, however, could not be overlooked, and he accepted the mission. From that time to the present Plymouth Church has been identified with Mr. Beecher. He is said to have the largest regular congregation in the world, not even excepting that of Notre Dame; and he never preaches a sermon, probably, which in some form or other does not reach a million or more of readers. Standing in Plymouth pulpit, he has exercised an influence throughout the land unsurpassed by that of any other individual in America, and his audience extends over Europe.

What that influence has been it would be superfluous for us to say. It is known of all men. It has impressed itself ineffaceably upon the history of the nation. On all social and political questions he has always occupied a position of advanced liberalism; and in religion he represents the extremest overture which true Christianity can make to the sceptical spirit of the times. Holding the divinity of Christ to be the one essential belief, he is willing to recognize all other questions as belonging to secular morals. It is on account of this non-dogmatic liberalism that Mr. Beecher has been regarded with so much suspicion by orthodox religionists, but it is now perfectly certain that it is on the line which he has taken upon which must be fought the final battle between Christianity and Philosophy.

Besides his ministerial labors, Mr. Beecher has performed a tremendous amount of literary work. He has been for years one of the most popular lyceum lecturers in the country, and is constantly in demand. He assisted in founding the *Independent*, and contributed powerfully to its success; he writes a weekly paper for the *Ledger*; has just become editor of the *Christian Union*, which he is carrying to the front rank of religious journalism; gives a weekly "Lecture-room Talk," and does beside a mass of miscellaneous work. He is also engaged, and has been for some years, upon a Life of Christ, which is to be the crowning labor of his life. At the same time he affords a lesson to all his professional brethren by the vigor with which he performs his extraordinary pastoral duties, and he is remarkable for his social qualities and his hearty participation in all the amenities of life.

In 1863, says Mrs. Stowe, "the burden of the war upon Mr. Beecher's spirit, his multiplied labors in writing, speaking, editorship, and above all in caring for his country, bore down his health. His voice began to fail, and he went to Europe for a temporary respite. On his arrival he was met on the steamer by parties who wished to make arrangements for his speaking in England. He told them that he had come with no such intention, but wholly for purposes of relaxation, and that he must entirely decline speaking in England." He yielded,

however, after several months, and by his speeches in Manchester, Glasgow, Liverpool, and London turned the tide of English opinion with regard to our late civil war.

As this bears upon the political career of Mr. Beecher, it may be well to refer to that briefly before concluding. In politics he has always been an ardent liberalist,—what we in America call a *radical*,—though his course has been nobly conservative and conciliatory since the war. Before he left college he had identified himself heartily with the anti-slavery party, and through all the long troublous years which have intervened he has been one of the most conspicuous and influential advocates of the cause.

The last time we saw Mr. Beecher was at the Academy of Music in Brooklyn, on the occasion of the celebration by the negroes of the passage of the XVth Amendment. The vast building was

packed with whites and negroes in about equal numbers. He was called upon to introduce Senator Revels to the audience, and as, at the conclusion of his remarks, he grasped the latter by the hand, saying, "As the representative of one race I extend to you, the representative of another, the right hand of fellowship," the great audience rose in a perfect frenzy of enthusiasm.

Fifteen years before a storm of obloquy was heaped upon Mr. Beecher for placing a negro upon the steps of his pulpit!

Verily, as we thought at the time, it is not often given to those who have groped in the early dawn of a moral awakening to look upon a triumph so complete.

And the triumph of the liberal and enlightened ideas which he has advocated, though slow, is not less sure, in the sphere of religious ethics.

POETRY.

PROTEUS.

A sense sublime
Of something far more deeply interposed,
Whose dwelling is the light of setting sun,
And the round ocean, and the living air,
And the green earth, and in the mind of man.

I.

Sole in blank boundless darkness, dimly bright,
The horned moon hangs o'er the viewless sea,
Whose spell-bound wavering lips wash fitfully
Up the black shingle in whisperings of crisp
light.

Lonely I stand—the midnight's hermit,
Whilst mine awed seaward gaze goes wist-
fully

Into the darkness face to face with me,
The darkness where the sea is, and the night.
And lo! I feel it coming again, again—

Up from the waves as Proteus did of old.
Ah, wert Thou like that old God of the main
To whom we cry "Unveil" for ever in vain,
Formless Desire, which no eye may behold,
No hands of ours can weary, and no spell chain!

II.

Ah, bosom-friend! familiar Mystery!
Oh Lurer with veiled face! oh Comforter!
One Spirit of many forms felt everywhere,
Who knows what manner of Spirit thou mayst
be?

None, tho' his most loved haunts be full of Thee,
Valleys, where leaves and clear streams sleep,
and stir,

The blue flash of the diving kingfisher,
The rose, whose depths of scent soft rains set
free,
Though Thy wild way be with the hurricane,

Thunder and cloud; though he behold the day
Cradling Thee in some wandering eastern
fleece

Of loveliest fire; or sadly sighing, again,
His evening soul bewail Thee, dying away
To unknown lands, and gold Hesperian seas.

III.

Ah! even now Thou art very near to me;
But veiled and far as ever from any prayer,
Still my soul feels Thee, and strange longings
there

Start at Thy voice, and cry in choirs toward Thee.
In mine own soul what may these tumults be—
Desires I cannot rule, that do not dare

Whole days to stir within their secret lair,
But at Thy voice seek their wild Rhodope?
One to another in a strange tongue calls—
I hearken, but can catch not what they say;
Only I hear their voices far away

Swell and a passionate clamor at intervals.
Ah, who art Thou their God? for what boon
pray
These mine own inmost soul's vague Baccha-
nals?

IV.

What! wilt Thou never be revealed to us!
Must our souls still in blindness follow Thee?
Nor, borne in swift raft over the deep sea,
Ever sleep even upon Thy Dindymus?

Not ever build Thee up a pillared house,
Nor serve Thee with articulate liturgy?
Never before Thine altar bend our knee,
Nor weave rare flowers in coronals round Thy
brows,
No costlier offerings than these prefer,

Blind discontent, insatiable unrest,
 Deep lonely love following an unknown guest,
 Sad as man's love for woman, and tenderer?
 Lo these be all we offer, alas! our best,
 No certain gold and frankincense and myrrh.

V.

Do we then waver, and fear we are fools and
 blind?
 Doubt we? and ask Thee whither lead Thy
 ways?
Ask whither? Nay, see whence, pale doubtful
 face!
 Look back, and see how far we have left behind
 Anger, and blinding lusts, and loves that bind,
 And the mean voice that to any moment says,
 "Stay, thou art fair," as with unflinching pace,
 Veiled One, we follow Thee, and trust to find
 Hereafter Thee unveiled—knowing, and known—
 Set with a rainbow round about Thy throne,
 Soul of our life's unrest—to find Thee
 The thing we have long sought sorrowing here
 from far,
 The Spirit of the bright and morning star,
 The sunrise, and the sunset, and the sea!

ON THE RIVER.

THE drooping willows whisper soft, the rushes
 murmur low,
 The water-lilies white unveil their breasts of
 gleaming snow;
 The kingfisher, a living gem, flits like a meteor by,
 The sun goes down, the star of eve upriseth in the
 sky.

There comes to me a memory, a memory of old,
 A tale of youth whose chronicles are ever writ in
 gold;
 A tale of love and summer-time, when roses were
 in blow,
 A tale of bright and happy dreams, a weary while
 ago.

'Twas in the melting, mellow light of eventide in
 June—

'Twas when the chestnuts were in flower, the
 nightingale in tune;
 But more than all, 'twas when our hearts had
 never known a care,
 And when the greed of fame, or gold, had never
 entered there.

Ah, golden hours of indolence! Ah, fleeting
 hours of bliss!
 Unmarked save by the clasp of hands, or by the
 stolen kiss!

We drifted on the river, carried onward by its flow,
 Beneath the bending alder-boughs, a weary while
 ago.

I dropped the oars—she the rope that held the
 rudder-band—
Somehow it happened, by and by, that hand lay
 clasped in hand;

And presently entwined were arms, and eye spoke
 mute to eye,
 No sound around to break the charm save when
 the swans sailed by.

Old am I now, and silver-haired, and life hath lost
 its zest,
 I soon beneath the daisied turf shall lie in dream-
 less rest:

But whilst I live, and whilst I love, on this fair
 earth below,
 I'll treasure in my heart of hearts those dreams of
 —long ago!

A. H. B.

A REGRET.

I BLAME not that your courage failed,
 That prudence over love prevailed;
 It seemed that we must walk together
 Rough ways through wild and stormy weather,
 And you must have smooth paths to tread,
 And skies all cloudless overhead.

Wise was your choice, the world will say,
 That sees you fresh and fair to-day
 As in the spring-time of your years,
 Those hazel eyes undimmed with tears,
 That forehead all unlined with care,
 Nor streaked with gray that chestnut hair.

Yet if you could have dared to lay
 Unfaltering hands in mine, and say,
 "I trust you still, nor count the cost!"
 Something, I doubt not, you had lost,
 Yet found when all was told remain
 To you and me some larger gain.

Not loveless nor unsweet my days;
 I toil, nor miss some meed of praise;
 Had you been with me they had known
 The grace they lack, and thou hadst grown,
 O weak but pure and tender heart!
 To something nobler than thou art.

Ah! better had we both been laid
 To rest for ever, ere the shade
 Of that cold worldliness had made
 Division worse than death, and bade
 Our souls be parted evermore,
 Still strangers on the heavenly shore.

A. J. C.

THE RECOGNITION OF GENIUS: A
SONNET.

WRITTEN IN A POPULAR EDITION OF WORDSWORTH'S POEMS.

TIME was, great Soer, when in thy mountain place
 Thou dwelt'st apart, and river, lake, and glen
 Had more to teach thee than the noise of men
 Or all the cares that vex our mortal race;
 Yet would the envious tribe that springs apace
 In presence of all goodness, even then
 With busy havoc of the idle pen,
 Have turned thy wise retirement to disgrace.
 Now, common as the all-encircling air,
 And open as the waters or the wind,
 We take thee, till the riches that we share
 Seem as a part of being,—undefined;
 This is the fame true greatness only knows,
 Pulse of the world's free heart it comes and goes.

ARGUING IN A CIRCLE.

BY GERALD MASSEY.

WHEN first my true love crown'd me with her
 smile,
 Methought that heaven encircled me the while!
 When first my true love to mine arms was given,
 Ah, then methought that I encircled heaven!

FOREIGN LITERARY NOTES.

Strahan & Co. have in press "The Book of the Visions seen by Orm the Celt," by Robert Buchanan. It contains ten poems or visions.

M. Rouher, the French ex-Minister, has compiled an important work on the woollen industry of France.

Hachette, of Paris, has nearly ready a most important work, "A Theory of Intellect," by the celebrated philosopher and writer, H. Taine.

Best of Everything is the title of a forthcoming English magazine, which will be under the editorial management of the author of "Inquire Within."

The Thirty-second volume of "Napoleon the First's Correspondence," lately published in Paris, completes what it is thought proper to give to the world.

A posthumous article by M. Sainte Beuve on Madame Tastu, the well-known poetess, has been published. It was intended by the author to form part of the *Galerie des Femmes Célèbres*.

M. Amédée Roux is the author of a new work entitled "Histoire de la Littérature Italienne Contemporaine." There is, however, room for a more complete and careful work on the subject.

The lectures of Prof. Max Müller on the Science of Religion, the first of which is given in our present number, are already eliciting much discussion in England.

Lamartine is said to have left MSS. enough to make twelve duodecimo volumes in addition to the numerous ones which he published during his lifetime.

The King of Burmah has offered a complete collection of the Buddhist Canon to the Government of Ceylon, and has undertaken to build a fire-proof library to receive it, at his own expense.

The Viceroy of Egypt has presented the University of Oxford with a complete collection of Oriental books printed at Boulak, amounting to 74 distinct works in 140 vols.

Prof. Huxley's work, "Man's Place in Nature," has been translated into Italian by Professor Pietro Marchi, under the title of "L'Uomo nella Natura."

M. Stanislaus Julien, an eminent French philologist, has recently published a Chinese grammar. The difficulty of this undertaking may be estimated from the fact that there are 800 letters and combinations of vowels in the alphabet.

The Dublin University Magazine, after a long and honorable struggle to be an essentially national periodical, has failed to find the support in Ireland which it deserved, and has passed into the hands of English proprietors.

Some undoubted MS. Homilies of Ælfric's, with an inedited Anglo-Saxon verse life of St. Judith, and a new edition of the varying formerly printed life of the Saint, are to be edited for the Early English Text Society by the Rev. W. W. Skeat.

A reprint of the Frankfort edition of 1688 of

"La Fameuse Comédienne, or History of La Guérin, the Wife and Widow of Molière," has appeared in Paris. M. Jules Bonassies adds a preface, notes, and collations of other editions.

The *Quarterly Review* for April contains an elaborate review of M. Lanfrey's Napoleon I. This work is, beyond question, the ablest and most powerful attack that has yet been made upon the fame of the great Emperor.

Lady Geologists.—The *Geological Magazine* for March contains two good papers by Lady Geologists. The labors of rational women of this class are worth more than all the thousand-and-one howls of what the *Saturday Review* justly styles "The Shrieking Sisterhood."

The star of Alfred de Musset's fame is said to be rising steadily toward the zenith in France. It has already eclipsed that of Lamartine, and bids fair to rival that of Victor Hugo himself, whose reputation was far from benefited by his two last books.

The first two sheets of the sample catalogue of Pali, Singhalese, and Sanskrit MSS., preserved in the temples and private libraries of Ceylon, have been received in England; also the first part of Dr. Kielhorn's classified catalogue of Sanskrit MSS., in the southern division of the Bombay Presidency.

Mr. Disraeli's new novel, the announcement of which created such a stir in London a month or so ago, has just been published. It is called "Lothair," and the author is said to have received an offer of £10,000 for the copyright, or £4,000 for the privilege of running it through a prominent magazine.

Mr. Robinson Ellis, the newly-elected Professor of Latin at University College, London, is about to bring out a translation of Catullus, in the metres of the original, keeping as far as possible to the rules of classical quantity, an experiment hitherto unknown in English translations of ancient authors.

Mr. Tweed, of Glasgow, Scotland, is the publisher of a curious volume, entitled "The Catholic History of Scotland," a copy of which he forwarded to his Holiness Pío Nono, and, in return, has been presented with a gold medal of considerable value, having a medallion portrait of the Pope upon it.

The twenty-fourth part (Red—Ret) of the great "Dictionnaire de la Langue Française," by M. Littré, has just been issued. The merit of this book is hardly yet recognized in England. It is the only etymological French dictionary with a series of examples from the earliest period to modern times, and deserves strong support.

We learn, as the public will learn, with pleasure, that the last word about Miss Mitford and her times has not been spoken. Her hitherto unpublished papers have been found to yield a rich crop of literary anecdotes and literary history. These will appear in the autumn, under the competent editorship of the lady's friend, Mr. H. E. Chorley.

A late volume of the Tauchnitz series contains

of the fifteen "Doubtful Plays of Shakespeare," those six which the editor, Max Mohle, deems unmistakably his. They are "King Edward III.," "Thomas Lord Cromwell," "Lochine," "A Yorkshire Tragedy," "The London Prodigal," and "The Birth of Merlin." The editor contributes an introduction and notes.

M. Spring, in a paper read at Brussels, remarks that Strabo asserts that the ancient Irish considered it creditable to eat the bodies of their parents, and that St. Jerome speaks of cannibals in Gaul. These ancient authorities, added to the peculiar way in which human remains found in caves are often fractured, establish, in M. Spring's opinion, the fact that all the inhabitants of north-west Europe were at one time anthropophagous.

The London Bookseller, with a view to promote the study of bibliography, has offered a series of prizes for the best papers upon given subjects. The first prize of ten guineas is for the best bibliographical list of works connected with paper and other materials for writing and painting, printing and its accessories—bookbinding, bookselling and booksellers—and literary history generally.

Dean Stanley once told a friend that he had read Hawthorne's "Marble Faun" six times. "Once," said he, "I read it as a new book, from curiosity; a second time on account of its beautiful language; a third time, because I was going to Rome; a fourth, while in Rome, as a work well suited to the spirit of the place; a fifth, after I left Rome, as a pleasant reminder of my visit; and the sixth time, because I wanted to!"

A new universal Musical Lexicon is being published at Berlin, edited by Hermann Mendel. It is to extend to about sixty numbers, and to include explanations of all the terms used in music, of the principles of acoustics, harmony, orchestration, &c., as well as biographies of musicians, notices of compositions, and an historical review of the development and progress of music in all its branches. Its title is the "Musikalisches Conversations Lexicon."

Mr. James Lenox, who is favorably known on this side of the Atlantic as one of the most ardent and liberal of American collectors, has presented his important and valuable library to the city of New York. The collection is very rich in ancient Bibles and in works illustrative of the early history of the United States. It includes also a Shakespeare collection of some importance—the four folio editions and several of the quartos. In addition to the gift of the library, Mr. Lenox offers an endowment of the large amount of three hundred thousand dollars.—*Athenæum*.

Books in the East.—The Literary Society of Belgrade has just published vols. 25 and 26 of their Memoirs; containing (*inter alia*) a large number of unedited documents relating to the Servian Monasteries of the Middle Ages, and a study on the literature of the Mahometan Serbs of Bosnia. The latter vol. also contains a bibliography of Servian and Croatian books published in 1868, as well as foreign books about the South Slavonic peoples. The same society has also issued, under the editorship of M. Stojan Novako-

vitch, a bibliography of Servian publications between 1741 and 1867.

The *Athenæum*, in noting the sale of a set of early-printed books in London, considers one block book on vellum the greatest puzzle it has seen. The illustrations are colored woodcuts, but the text, written in various hands, is like manuscript. There was, besides, a series of German playing cards of the fourteenth century, an Icelandic MS. of the fifteenth, and the first perfect copy ever discovered of "La Legende Dorée," printed at Lyons, by Barthomé Buyer, in 1476. The only other copy known (in Lord Spencer's library) wants at least one leaf, and probably several. It is the first French book printed in France, but no copy is now known in that country.

Punch has made a most important discovery in literary archæology over which it is very mysterious, but announces: "This interesting letter will shortly be published (it is in cipher, but fortunately the key is in the possession of the Ironmongers' Company), with a preface, prolegomena, introduction, copious variorum notes, including some ingenious but entirely conjectural emendations, appendixes, and indexes, and with illustrations and fac-similes produced by the new chromophotolithotintotypoxylographic process. A few copies will be struck off on large paper and appropriately bound in calf, for presentation to various learned and scientific bodies at home and abroad."

Mr. Morris is writing a work on the *Nibelung* story, which will be out early in May. It will contain (1) a translation of the *Völsunga Saga*, a prose rendering of the story gathered from such of the songs of the elder Edda as existed at the end of the 12th century, and from traditions of songs lost before that time; and (2) translations of most of the songs which the Saga-man had before him, the greater part of which still exist, though in a more or less incomplete shape. The vivid prose and verse of the originals belong to the highest order of early literature, and is quite free from the wordiness of later mediæval work. Mr. Morris's *Bellerophon* will form part of the last vol. of the *Earthly Paradise*.

Dr. Haug has published an interesting paper on the origin of the Sikh religion in the *Algemeine Zeitung*, Feb. 1. It was founded, like several other sects, in the 16th century, and possesses two sacred books: the *Adi Granth*, or the Book of the First Nine Gurus, and the so-called Book of the Tenth King. The more interesting is the former, which contains various religious poems by 25 authors, including Nānak, the founder of the sect, written in various dialects of old Hindi, though some pieces are in Sanskrit. The other sacred book is tinged with Hindu mythology, and is in purer Hindi. Dr. Trumpf has been intrusted by the Secretary of State for India with the task of translating these hitherto unknown records.

Valuable Results.—As one of the good results of the English Historical Manuscripts Commission we may mention that the Marquis of Lothian has readily consented to let the Early English Text Society print his volume of Anglo-Saxon Homilies of the tenth century, and the Anglo-

Saxon Glosses in his Latin Psalter of the ninth century, while the Right Hon. Lord De Tabley has also kindly promised to allow the same society to print, in its volume on Early Music, his curious MS. on the History of Music and on Music in England, with a description of musical instruments and a list of the best lutanists in Elizabeth's time, and the best artists in music in 1640. This volume Dr. Rimbault will edit, while Mr. Richard Morris will edit the Anglo-Saxon texts.

Madame George Sand leads a very simple life at her château at Nohant, in company with her son and daughter-in-law. She rises at eleven, and breakfasts alone on an egg and a cup of sugarless black coffee. Then she smokes a few cigarettes, the best Maryland tobacco. At twelve she goes out for a walk, returns in an hour to write till six, then dines on soup, fish caught by her own hands, and fruits, *ad libitum*. At midnight she retires to her room, makes her *toilette du nuit*, and then writes until six in the morning. If she finishes a work at two o'clock, she "lays down a new keel," and continues to write until the usual hour. Her penmanship is clear, and each page, written on lines, is limited to a fixed number of words. Old music is her delight, and MOZART her favorite; she is fond of private theatricals and of dominoes, but never plays for money. In personal appearance she is described as dumpy, but not disagreeably so; her head and shoulders are large and heavy, her eyes piercingly back, her mouth vulgar but not sensual, hands and feet small and plump as a child's, and complexion the color of old ivory. She dresses in antique style, but is fond of gaudy colors.

The Rewards of Poets.—The following, although not entirely new, may be interesting to biographers and lovers of the poets mentioned; it is from the tract by Henry Peacham, himself a distressed writer of verses, which is styled "The Truth of our Times," 1638, pp. 37, 38, and 39: "Let us looke a little further backe to the authors and poets of late time, and consider how they have thrived by their workes and dedications. The famous *Spencer* did never get any preferment in his life save toward his latter end, hee became a clerk of the Councell in Ireland, and, dying in England, hee died but poore. When he lay sick, the noble and pattern of true honour, Robert, Earle of Essex, sent him twenty pound, either to relieve him or bury him. *Joshuah Silvester*, admired for his Translation of *Bartas*, dyed at Middleborough, a Factor for our English Merchants, having had very little or no reward at all, either for his paines or Dedication: And honest Mr. *Michael Drayton* had about some five pound lying by him at his death, which was *Satis viatici ad celum*, as *William Warham*, Bishop of *Canterbury*, answered his steward (when lying upon his death-bed, he had asked him how much money hee had in the house, hee told his Grace Thirty pounds)."

An important scrap of news has come from the ancient land of Moab. An inscribed stone was found almost in the heart of that once warlike kingdom, on which Mesha, a monarch whose name appears in the "Book of Kings," has recorded some of his exploits. There are also names of places which occur in Scripture, and these, being identified, facilitate the work of translation. The

character of the writing is that known to Oriental scholars as Phœnician. It is very unfortunate that as soon as the Arabs heard that inquiries were made concerning the stone they broke it up, and hid the pieces in their granaries. These have, however, been recovered by Captain Warren, of the Survey, and one of the functionaries of the French Consulate, so that we may hope the whole will some day be seen in Paris or London. In its complete state the stone appears to have been three feet five inches high and one foot nine inches wide. Tracings of the largest pieces are now in the hands of Mr. Deutsch, of the Museum, and others are expected. When once he shall have the whole before him he will scarcely fail, he states, to show, that whether as regards paleography, ancient geography, or biblical history, this venerable Moabite stone is one of the most important ancient records ever yet discovered. Its date is supposed to be about 850 years B. C.

Leon Curmer, the publisher, who died the other day in Paris, used to tell an amusing story of Balzac. At one time Curmer resolved to bring out an illustrated weekly journal—a thing then unknown in France. It was to be called *Les Français peints par eux-mêmes*, and Balzac was to contribute a series of humorous sketches of the various trades and professions. At first Balzac was in raptures at the idea, and fairly dazzled poor Curmer with the brilliancy of his suggestions. A week passed, and Balzac's enthusiasm had grown cold. Curmer was unable to get anything from him. The new journal, however, had been announced everywhere, and it was quite impossible to recede. On the eve of publication the printer's messenger was sent to Balzac's lodgings, with strict orders not to come back empty-handed. He returned with three or four slips of paper, on which a few lines had been hastily scribbled. Curmer, however, knew his man. The manuscript was speedily in type, and the proof was sent back to the author. Again it returned, double its former size, with erasures, corrections, and additions crossing each other between the lines in inextricable confusion. Eight times was the process repeated, and at last the admirable monograph entitled *Nos Epicuriens* was the result. "The corrections of that proof," Curmer used to say, "cost me 1,000 francs, but I sold 20,000 copies of the first number."—*Tribune*.

In the Imperial Library, at Paris, there is a manuscript collection of the sermons of Gregory the Great, which contains a large number of illustrations on various subjects, and among them a drawing representing the second (Ecumenical Council, held at Constantinople, in which Bishop Gregory took part. In the drawing the seats of the prelates form a half circle round the throne, to the left of which is installed, on a raised chair, the Emperor Theodosius the Great. In the foreground, on the left, is the Macedonian Bishop; and on the right, Bishop Apollonius. Of the latter the name alone remains, the face having been destroyed. Between the two are placed their writings, which were condemned by the Assembly. No one occupies the throne erected in the centre of the hall; but on the purple seat is lying a large open book—the Holy Scriptures—to indicate that it alone ought to preside in the

Council, and that it is the supreme judge in contested questions. The draughtsman has not invented that disposition; he has only reproduced the reality. What proves the fact is the testimony of Cyril, Patriarch of Alexandria. When speaking of the third Œcumenical Assembly, held at Ephesus, in 431, he wrote: "The holy synod met in the Church of Mary. The Presidency was given to Christ himself; for the Gospel of God was placed upon the throne, and seemed to say to the members present—Be just in your judgments!"

LITERARY NOTICES.

Goethe's Hermann and Dorothea. Translated by ELLEN FROTHINGHAM. Boston: Roberts Bros.

THAT the same imagination which conceived "Faust" should also have produced "Hermann and Dorothea," is matched by but one other fact in the history of literature: that the same pen which gave us "King Lear" glided also into the limpid cadences and "footless fancies" of the "Midsummer Night's Dream." Without actual knowledge of the authorship, Goethe is probably the very last name among the poets to which "Hermann and Dorothea" would have been assigned on *a priori* grounds. "Hermann and Dorothea" is the one perfect idyll in literature. Judged by its standard, every other, ancient or modern, is either epic or lyric, feverish or feeble. Though an absolutely realistic sketch of German peasant life, it is cast in the severest form of the Greek tragedy. Of incident there is none. Everything extraneous is eliminated, and nothing whatever is permitted to divert the attention from the group of characters whose placid lives are unfolded before us. Even the turbulent scenes of war and suffering and exile which form part of the panorama are important only as they result in bringing together Hermann and Dorothea. But for this fact they impress one with a sense of infinite remoteness and insignificance. We read of them very much as the shepherds of Acadie might read of the battles of the French Revolution.

Of this poem, writing in his Diary of March 10, 1853, Henry Crabb Robinson, who knew Goethe well, and was familiar with his works, says: "I hold it to be one of the most delightful of all Goethe's works. Not one of his philosophical works, which the exclusives exclusively admire, but one of the most perfectly moral as well as beautiful. It realizes every requisite of a work of genius. I shed tears over it repeatedly, but they were mere tears of tenderness at the perfect beauty of the characters and sentiments." No one possessed of poetic sensibility can read it without experiencing similar emotion.

In translating "Hermann and Dorothea" into English hexameters—confessedly the most difficult metre that can be attempted with our language,—Miss Frothingham has succeeded even better than in her former translation of Lessing's "Nathan the Wise." The verse is flowing, spontaneous, and idiomatic, with scarcely a hitch or false measure throughout.

Several good engravings embellish the volume, which has been issued by the publishers in a style worthy of the work.

The Bazar Book of Decorum. New York: Harper & Bros.

THE author says in her preface: "This book is an attempt to raise the subject of which it treats to its proper connection with health, morals, and good taste;" and it is the highest praise which can be bestowed upon a work of this kind when we say that she has succeeded,—succeeded, that is, if we use the words health, morals, and good taste, in their purely obvious and conventional significations. She has certainly produced the first work on the subject that can be read without feelings of indignation and disgust. While conveying all the needful instruction upon points which are essential and at the same time purely conventional, she has the intelligence to perceive the difference between politeness and vulgar formalism; and she can give the etiquette of breakfast and dinner, of christenings, weddings, and other ceremonials, without informing us that it is not considered genteel to pick our teeth with the carving-knife, or to blow our noses in the napkins. Indeed, the skill with which the line is drawn between that which is essential and that which may fairly be left to individual discretion, shows the author to be of a different class from the priggish compiler whom we usually meet in this field. In addition to the rules of etiquette, which are formulated and explained, there are many sensible and reliable suggestions regarding the hygiene and care of the person; and taken altogether, we cordially recommend the Bazar Book of Decorum to all who desire to be polite and who are not entirely familiar with the conventional code of society.

How to Treat the Sick without Medicine. By JAMES C. JACKSON, M.D., Danville. New York: Austin, Jackson & Co.

THE principal objection that can be made to this work is that it is too much of the nature of an advertisement, and too chary of those details and minute instructions which alone make a pathological treatise entirely effective. Dr. Jackson is a hydropathist, and presides over one of the most successful "water-cure" institutions in America, and his absolute confidence in this method gives his suggestions a special application, which tends greatly to impair the effect they might otherwise have. Nevertheless he thoroughly understands the principles of physiology, and his book contains much valuable instruction concerning the laws of health; particularly concerning diet and personal hygiene. Moreover, those thousands of unfortunates who have been victimized so long by the experiments of the Esculapians, will be glad to read that there is at least one cultured and successful physician who has never given a drop of medicine, and who believes that when it has become necessary to give medicine it has become unnecessary to do anything at all.

In Spain and Portugal. By HANS CHRISTIAN ANDERSEN. Author's Edition. New York: Hurd & Houghton.

SEVERAL months ago, in reviewing "The Improvisatore" and "The Two Baronesses," we announced the intention of the publishers to issue a complete edition of Andersen's works, specially revised by the author. At the same time we

gave such an analysis of Andersen's characteristics as a writer, that it will not be necessary for us to do more than mention the successive volumes as they appear. Since then the world-famous "Wonder Stories for the Young" have been issued, and the fourth volume of the series, comprising the author's travels in Spain and Portugal. It would be difficult to meet a more agreeable companion in any walk of literature than Andersen, but he is particularly pleasant as a traveller. His faculty of observation, his culture and sensibility, and his keen eye for the beautiful, give a peculiar flavor to the instruction he imparts; and the flowing, rambling style has all the ease and abandon of oral narrative. Few travellers have so much self-restraint as he—that is, few discriminate so nicely between what should be told and what can very well be left for the compilers of guide-books. The interest which is now felt in everything connected with Spain makes this book peculiarly opportune, for it is only a few years since Andersen was there, and he gives some suggestive glimpses of the actual condition of the Spanish people.

Wonders of Italian Art. By M. LOUIS VIARDOT. Illustrated Library of Wonders. New York: Scribner & Co.

WE have had occasion more than once, as the successive volumes have appeared, to commend the "Illustrated Library of Wonders," translated from the French and published by Scribner & Co. These books, though designed entirely for popular reading, are prepared by well-known and thoroughly-competent savans, and are quite a model of lucid and scientific, yet untechnical exposition. The last volume issued is the "Wonders of Italian Art," and it is likely to prove one of the most useful as it is one of the best of the series. M. Viardot is an art-critic much respected in France, and he has condensed a large amount of good criticism and other instruction into the four chapters of his work. First he gives an outline of what we may call the continuity of art traditions, from ancient times, through the Middle Ages; then an analysis of the Renaissance, and lastly an examination in detail of the different Italian schools. Biographical sketches of Raphael, Michael Angelo, Titian, Tintoretto, Guido, and the other great artists, with an analysis of the work of each, occupy the larger part of the volume, and afford entertaining as well as profitable reading. The woodcuts, representing some of the most famous pictures of the world, are far from satisfactory, of course; but they are suggestive, and give an idea of the pictures such as no words could convey.

Travels in Little-Known Parts of Asia Minor. 2 vols. By REV. HENRY J. VAN LENNEP, D.D. New York: A. O. Van Lennep. 1870.

THIS work is an interesting contribution not only to the literature of travels but to Biblical literature and archaeology. It is quite elaborate, and, as justice cannot be done to it in a few lines, we reserve it for more extended notice.

BOOKS RECEIVED.

[The Publisher will send any book reviewed in

the ECLECTIC, or any other new publication, postage paid, on receipt of price.]

American Political Economy, Including Structures on the Management of the Currency and the Finances since 1861. By PROF. FRANCIS BOWEN. New York: Scribner & Co. pp. 495.

Zell's Popular Encyclopedia. Nos. 27 and 28. Philadelphia: T. Elwood Zell. Large quarto, 40 pp. each.

Marion Berkley. By LAURA CANTON. Boston: Loring. 16mo, cloth, pp. 255. Illustrated.

Talks to My Patients; Hints on the Art of Getting Well and Keeping Well. By MRS. R. B. GLEASON, M.D. New York: Wood & Holbrook. 16mo, cloth, pp. 228.

Ben the Luggage-Boy; or, Among the Wharves. No. 5 Ragged Dick Series. By HORATIO ALGER, JR. Boston: Loring. 16mo, cloth, pp. 290. Illustrated.

Self-Help; with Illustrations of Character, Conduct, and Perseverance. By SAMUEL SMILES. New York: Harper & Bros. 12mo, pp. 447.

Debenham's Yow. By AMELIA B. EDWARDS. New York: Harper & Bros. 8vo, paper, pp. 178. Illustrated.

Tom Brown's School-Days at Rugby. By ARTHUR HUGHES. New York: Harper & Bros. 8vo, paper, pp. 135. Illustrated.

An Old-Fashioned Girl. By LOUISA M. ALcott. Boston: Roberts Bros. 16mo, cloth, pp. 378. Illustrated.

Bryant's Casket of Musical Gems. New York: R. M. DeWitt. Quarto, paper, pp. 32.

The Church and Her Sacraments. By W. R. GORDON, S.T.D. New York: Board of Publication of the Reformed Church. 16mo, cloth, pp. 208.

SCIENCE.

Effects of Sunlight on Vegetation.—Experiments in reference to the effects of sunlight of different intensities in developing the chlorophyll in plants have been recently made by M. Prillieux, and have been reported by him to the French Academy of Sciences. Galignani gives the following abstract of the paper:—In former experiments sunlight was weakened by being received through water or glass shades, and the results were therefore liable to be modified by the absorption of rays. To avoid this, M. Prillieux, by means of a heliostat, caused a cone of light six mètres in length to fall into a dark room, and he then placed a series of five pots, each containing barley that had been reared in the dark, within the luminous region. No. 1 was placed at a décimètre's distance from the focus of the lens through which the solar rays were transmitted; No. 2 was placed at 16 times that distance; No. 3 was separated from the latter by a further interval of 12 décimètres; No. 4 was at 55 centimètres from this; and No. 5 stood at 57 décimètres from the focus. The experiment lasted from half-past one to half-past four P.M.; and at the end of these three hours it was found that all

these little plants, except those of No. 1, had become green to very nearly the same extent; while those that had remained nearest the focus, and had therefore been exposed to the fullest sunlight, had remained as yellow and sickly as before.

The Mineral Coals of the United States.—Some traces of the use of mineral coals are found before the Christian era; but their importance as a fuel was not known until about the middle of the fifteenth century, and only within a brief period has coal become the great promoter of civilization. About 1649, London petitioned Parliament to abate the nuisance of the coals of Newcastle, as an "offensive commodity;" and, within about fifty years, the hapless countryman who introduced the anthracite coal, as a fuel, into Philadelphia, was threatened with prosecution for fraud and misrepresentation in selling a worthless article. The city of London now uses about 8,000,000 tons per annum of the bituminous coal, and England's power would vanish like a dream without this "offensive commodity;" while Pennsylvania draws from her anthracite coal the sinews of her strength and prosperity. In 1858, it was estimated that the whole coal area of the earth was about 200,000 square miles, distributed in part as follows:—

United States.....	188,132	France.....	1,719
British America....	18,000	Belgium.....	518
Great Britain.....	11,859		
Spain.....	8,408	Total.....	168,636

This estimate is found, by recent discoveries, to be far too small for the United States, but may be nearly correct as to Europe. The surveys and explorations of our continental interior have brought to light extensive fields of bituminous coal, and even anthracite is said to have been found on the Pacific slope. The coal area of the United States is, beyond question, more than 200,000 square miles, or 128,000,000 acres. Calling 30 cubic feet a ton, and the average thickness of its coal six feet, the number of tons in the coal-fields of the United States would be 2,230,272,000,000. About three-fourths of the coal deposits of the whole world, so far as they are yet discovered, are in the United States—eleven times as much as in all Europe, and seventeen times as much as in Great Britain. The coal-fields of Virginia and West Virginia, containing about 25,000 square miles, are of extraordinary thickness and of superior quality, embracing all the varieties of bituminous, splint, and cannel coals. These magnificent treasures of mineral coals, when once the grand railways and canal from the Chesapeake to the Ohio shall have been completed, may be placed on shipboard in the harbor of Norfolk at \$3½ to \$4 per ton, and delivered in the Mediterranean ports at prices, considering their superior excellence as steam coals, below the present cost of English coal.

Professor Kirkwood on Sun-spot Periods.—This laborious and thoughtful astronomer has subjected Wolf's periods to careful scrutiny, and has been led to the conclusion that in order to account for sun-spot periods we must suppose that portions of the sun lying in certain solar longitudes are more capable of being influenced by disturbing causes than other regions. He ascribes to Mercury the most powerful disturbing effect, and in particular he regards this planet as the cause

of the 11-year period—46 revolutions of Mercury being equal to 163 solar rotations, and to about $11\frac{1}{4}$ years.

Pearls in the Gulf of California.—The revenue returns for 1869, received by last mail from City of Mexico, show that the catch of pearls and shell for the past year on the Gulf coast of the territory granted to the "Lower California Company" amounted to the large sum of \$78,000.

This, of course, is the valuation of the pearls given by the divers and speculators, and is consequently very much below the actual value of the catch.

A pearl is sold frequently for \$20, which, re-sold at Panama at \$200, brings \$1,000 in Paris; and in many cases much greater profits have been made on very fine gems.

Not over one-half the catch is ever reported to the Government, and the yield of the Gulf for 1869 may be safely estimated at \$300,000 in gold.

Present state of our Knowledge of Meteorites.—Herr Rammelsberg, of Berlin, has just given a summary of what is known, from a mineralogical and chemical point of view, of the meteorites, those messengers from other heavenly bodies which from time to time reach our earth. The essential constituents which are always present in very distinct classes of these foreign bodies are nickel, iron, phosphorus, sulphides of the metals, oxides, silicates, free silicic acid, and, in rare instances, carbon, or combinations of carbon.

New Theory of the Milky Way.—Mr. Proctor has been led, by a careful examination of the structure of various parts of the Milky Way, to the conclusion that the true figure of the system of stars constituting this zone can neither be that of a cloven disc, as supposed by Sir W. Herschel, nor that of a broad flat and in part cloven ring, as suggested by Sir John Herschel. He points out that the existence of round coal-sacks in the Milky Way is as conclusive as to its figure, at least in those parts, as the round figure of the Magellanic Clouds is as to the general figure of those strange clusters. We cannot suppose the coal-sacks to be tunnel-shaped openings extending through the whole breadth of a wide, flat ring, without the "obvious improbability" spoken of by Sir John Herschel when dealing with the supposition that the nebulae may be cylindrical in figure. This being so, it follows that if the coal-sacks are really openings through a star-zone, that zone cannot, in all probability, have a much greater extension in the direction of the line of sight than at right angles to that line. According to this view the section of the Milky Way near the coal-sack in Crux (and presumably elsewhere) would be, roughly, circular. And viewing the Milky Way as a ring of circular section—that is, as resembling in section an ordinary wire ring—one can understand many peculiarities of its structure which seem wholly opposed to either the disc or the flat-ring theory. For example, the great gap in the constellation Argo may be readily explained, and so also can the yet wider vacant space in the fainter branch where the ring is double. Mr. Proctor shows how, by assigning to the Milky Way a spiral figure, nearly all the prin-

cipal peculiarities of the zone can be very fairly accounted for.

Color Changes in the Planet Jupiter.—We have mentioned that last October Mr. Browning noticed that the great equatorial belt of Jupiter, usually the brightest part of the planet's disc, was of a greenish-yellow tint, resembling the color known among artists as yellow-lake. Since then the belt has passed through other changes, appearing sometimes of an almost full orange-yellow, at others coppery-red; while its boundaries, both on the north and south, have exhibited the most surprising changes of figure.

The Sun's Corona.—Astronomers are already looking forward with interest to the total eclipse of next December, when they hope to solve the perplexing problem presented by the solar corona. Mr. Lockyer, in a paper communicated to the Royal Society, has expressed his continued adherence to the theory which explains the corona as due to the glare of our own atmosphere. In this way he gets over certain difficulties presented by the results of spectroscopic analysis as applied by himself to the chromosphere and prominences, and by the American observers to the corona. It may be questioned, however, whether these spectroscopic observations cannot be interpreted more simply. One point, at any rate, is obvious; the corona is not a solar atmosphere; that it is, however, a solar appendage, can hardly, we think, be reasonably doubted.

The November Meteors.—Observations made on these objects last November, have continued to come in from various far distant stations. They point conclusively to a well-marked spreading of the meteor system, as compared with the portion through which the earth passed in November, 1868. In fact, from some observations made by Lieut. Tupman at Port Said, it would seem as though the width of the system had increased fully fourfold in the interval. The problem presented by the November meteors becomes more and more interesting, the more we consider the relations really involved in what has been discovered respecting the extent of the system.

Icicles in the Cells of Plants.—At a meeting of the Academy of Sciences of Paris, on 21st February, M. Prillieux sent in an interesting paper on the congelation of plants. He has established the existence normally of large icicles in the interior of all frozen plants. These icicles form small columns, perpendicular to the surface, and often penetrating the epidermis. The ice is formed from liquids derived from the cells. The cells themselves remain intact, so that there is no destruction, but simply a separation of organs, and therefore what has been said concerning the death of plants by freezing goes for nothing.

A Rain of Sand.—A curious shower of sand took place in some parts of Italy on February 13 and 14 last, and has been described in the *Comptes Rendus* by M. P. Denza. This memoir, says the *Chemical News*, contains the account of a very curious phenomenon—viz., rain in the southern parts of Italy accompanied by a fall of a fine reddish sand, while, in the northern parts of that kingdom, snow fell, accompanied by the same substance. The sand has been tested and found identical with that

which is now and then carried by gales of wind from the African desert, not simply into Italy, but even sometimes into Switzerland, where some of it fell, along with snow, at Tescappina (Canton des Grisons). This paper contains many curious facts relating to a phenomenon which is sometimes observed also on the Canary Islands.

The Volcano Fish.—A paper having appeared some time since in a contemporary, from the pen of the Rev. W. W. Spicer, in which the phenomenon of the expulsion of fish from volcanoes was spoken of as strange and astounding, and the idea being conveyed that the fish must have lived "in the line of fire" before being expelled, Mr. Scrope, F.R.S., writes to *Scientific Opinion*, February 23, as follows:—This sensational version of a very simple fact is one only of several which, on the authority of "the great Prussian traveller," have been repeated by compilers of treatises on volcanic phenomena. The simple fact, I conceive, is that the fish in question lived in the open air in crater-lakes, such as are frequently found at the summit of trachytic volcanoes—for the reason that the fine ash, which is usually the last product of their eruptions, and therefore forms the lining of their craters, is very retentive of moisture, and consequently occasions the production of lakes at the bottoms of these hollows. Of course in these lakes the same kind of fish will probably be found as, by Mr. Spicer's own statement, are met with in other lakes at an almost equal elevation on the outer sides of these very volcanoes.

A Shower of Shell-fish.—Our authority for the following account is a recent number of the *American Naturalist*. Mr. John Ford exhibited to the Conchological Section, Academy of Natural Sciences, Philadelphia, specimens of *Gemma gemma*, remarkable as having fallen, accompanied by rain, in a storm which occurred at Chester, Pennsylvania, on the afternoon of June 6, 1869. The specimens were perfect, but very minute, measuring one-eighth inch in length by three-sixteenths inch in breadth. Though most of the specimens which fell were broken, yet many perfect ones were collected in various places, sheltered from the heavy rain which followed their descent. A witness of the storm, Mr. Y. S. Walter, editor of the *Delaware County Republican*, assured Mr. F. that he noticed the singular character of the storm at its very commencement, and, to use his own words, "it seemed like a storm within a storm." A very fine rain fell rapidly, veiled by the shells, which fell slower and with a whirling motion. Judging from the remains of animal matter attached to some of the specimens, together with the fresh appearance of the epidermis, it is highly probable that many of them were living at the moment of transition. This minute species resembles a quahaug shell, and is common on the seashore between tide-marks.

Curative Properties of Petroleum.—A London medical journal reports a number of cures in East Indian hospitals by the application of petroleum in combination with other materials, to form a consistent ointment. Petroleum is found to take the place of carbolic acid as a local disinfectant. It has been successfully used, also, by American physicians, and has long been sold in this country as a "patent medicine" under various names.

Comets and Meteors.—The same astronomer shows reasons for believing that the solar system, as it passes through the interstellar spaces, traverses regions in which cometic or meteoric matter is sometimes densely and sometimes sparsely strewn. He concludes that during the interval from 700 to 1200 the solar system was passing through or near a meteoric cloud of very great extent; that from 1200 to 1700 it was traversing a region comparatively destitute of such matter; and that about the commencement of the eighteenth century it again entered a similar nebula of unknown extent. He points to a fact which has not hitherto, so far as we know, been noticed, that all the comets whose perihelion distances are less than 0.01 have their perihelion close to the direction towards which the sun is moving, while those whose perihelion distances are less than 0.05 exhibit a well-marked approach to the same peculiarity of distribution.

The Proper Motion of the Stars, and the Sun's Motion through Space.—Mr. Proctor, as we have already mentioned, has recently obtained some rather singular results respecting the proper motions of the stars, so far as they avail to indicate the motion of the sun through space. His paper on the subject has since appeared in the Monthly Notices of the Astronomical Society. It will be remembered that Mr. Dunkin, applying a method devised by Mr. Airy to the motions of 1,167 stars, found for the point on the heavens towards which the sun's motion is directed a place closely corresponding with the mean of results obtained by others. But when he applied to the uncorrected sum of squares of the stellar proper motions a correction corresponding to the deduced solar motion, he found, in place of a considerable reduction, a sum not differing by one-thirteenth from the uncorrected sum. Mr. Proctor, analyzing Mr. Dunkin's results according to several distinct hypotheses, arrives, by independent methods, repeatedly to this one conclusion, that the distances of the fainter stars have been largely over-estimated by astronomers. Finally, dividing the whole number of 1,167 stars into two sets, one including the stars of 1st, 2d, and 3d magnitudes, the other those of the 4th, 5th, and 6th magnitudes, and comparing the mean distances inferable from the mean proper motions of each set, he finds the ratio absolutely one of equality. It would follow, of course, that the stars of the lower orders of magnitude are relatively small (instead of being very far from us); and that in such a degree as to enable us to refer these orbs to the same region of space as the larger stars. Mr. Proctor remarks, however, that he is far from wishing to place so great a stress on his results; but he considers that they do suffice to render the usually accepted views respecting stellar distribution wholly untenable.

Star-drift.—In a paper communicated to the Royal Society, Mr. Proctor points out another peculiarity of the stellar proper motions. In certain regions of the heavens the stars exhibit a well-marked tendency to drift in a definite direction. Mädler had already noticed this in the case of stars in the constellation Taurus, but the German astronomer was mistaken in supposing that the drift in this constellation is exceptional. On the con-

trary, there is a more remarkable drift in the constellations Cancer and Gemini; while in many regions of the heavens the drift is at least as remarkable as in Taurus. It is to be noticed, therefore, that whatever stress has been laid by astronomers on Mädler's conclusion that Alcyone is the centre of the stellar motions is misplaced, since a similar community of motion is observed in other neighborhoods. One of the most singular instances of star-drift is recognized in the constellation Ursa Major. The five conspicuous stars β , γ , δ , ϵ , and ζ are all travelling in the same direction and at the same rate, in a direction which is exactly contrary to that due to the stellar motion. If these stars indeed form a single system, and it is scarcely possible to draw any other conclusion from so remarkable a community of motion, the mind is lost in contemplating the enormity of the cyclic period of this vast system. The duration of our solar system must be regarded as a mere moment by comparison.

ART.

Mr. Jarves on the Proper Prices for Art Labor.—Consummate talent should not be grudged its gains, however large, because they are the legitimate fruit of labor, and the world largely benefits by it. But why pay as much or more for the inept or common-place as would content the greatest skill? The "Webster" of Powers is by universal criticism considered to be as indifferent a representation of that statesman as could be fashioned, and without any redeeming æsthetic features. For the original statue lost at sea, the public paid \$12,000; and for the present duplicate \$7,000; in all \$19,000. It cost to cast these statues in Florence, bronze included, within a fraction of \$3,300, which leaves almost \$16,000 as the sum paid for the fabrication of the "clay model," the equal of which any clever artist could put up in a short time. In these days, when monuments to cost hundreds of thousands of dollars are put without reflection into hands to be executed that have never given proof of their capacity to excel in art, it is expedient to pause a while over the pecuniary responsibility at stake. I am not speaking of works that display actual beauty, or energetic invention, or any really strong, characteristic trait. An American who could model a "Demosthenes" or "Aristides," would be cheaply paid at fifty thousand dollars, while one who did no better than the newly-found gilt "Hercules" at Rome, would be dearly paid at five thousand for a similar monster. An author may employ ten times as much toil and brains on a book as it took to model the "Webster" or "Everett," and he would be esteemed fortunate were he to receive one-tenth of their cost for his copyright.

The cost of making an ideal bust in Florence, including the marble, like the usual run of fancy heads, is eighty to one hundred dollars by contract. A portrait-bust, life-size, costs higher, and it is less remunerative, because seldom repeated; but two hundred dollars would cover the cost of the bust, including the time in taking the clay model. A heroic-sized statue in marble costs about two thousand dollars to make; repetitions of the ordinary parlor statues, Eves, Greek Slaves, Judiths and their like, from eight hundred to one thousand

The profit on large monuments is so large as to turn towards sculpture considerable ordinary business talent, which, as regards art, had better be left to its common pursuits. The "Cavour" statue, second quality of Carrara marble, sixteen feet high, imposing and respectable, lately erected at Leghorn, cost by contract twenty-five thousand francs. We often pay ten thousand dollars for statues no better executed, of ordinary life-size.

King George of Greece is excavating the ancient Panathenaic Stadium at Athens. He has purchased at his own expense the land supposed to have been occupied by the race-course on the right bank of the Ilyssus, and workmen are engaged in removing the deposits of earth. At a depth of several feet, a perfect semi-circular wall of compact marble has been exposed, and a corresponding interior wall of perfect masonry. Between these the spectators passed, ascending through marble entrances—two of which have also been discovered—to the seats in the amphitheatre above. These walls are supposed to have extended around the entire length of the race-ground, and may be still existing. The upper end is in perfect preservation. Parts of columns have been found with carved work at the base, and other marble fragments forming portions of the doorways and seats. It will not be surprising if King George's discoveries equal those made along the shores of the Acropolis, which are now only second to the Parthenon and the Tharum. The length of the Stadium was 600 yards, the semi-circle end was artificial, and the natural slope of the banks formed the amphitheatre, where some 40,000 spectators seated themselves on the turf. Herodes Atticus constructed the marble steps and seats, and this is the work now brought to light. It is described by Pausanias as having been "of white marble and wonderful to behold." The king intends to upturn the earth over the whole extent of the plain and hill-sides, so that whatever exists in the way of stone-work may be revealed.

"The Muse of Cortona," is the only painting which remains to us from the pre-Christian age.

The "Muse" has those qualities which the best Italian masters have ever sought, and which French art tries to realize. Painted in the encaustic method, which was adopted in remote antiquity, it resists time and humidity better than any other. The Byzantines adopted it from the old, and transmitted it, in a modified manner, to the modern Greeks and to the Russians. There exist pictures, done in this way eight centuries ago, perfect now. Pliny says this system was in vogue before the epoch of Aristides. It is conjectured that the colors were boiled with wax, into which a light dose of oil was infused. The prices paid Zeuxis, Parrhasius, and Apelles exceeded even modern prodigality, and indicate the esteem in which they were held. Lucullus gave several thousand dollars for a copy of a portrait of Glycère seated with a crown of flowers in her hand. Nicias refused upwards of one hundred thousand dollars of our money for a painting of the "Descent of Ulysses into Hell," preferring to give it to Athens, his birth-place. Julius Cæsar paid nearly two hundred thousand dollars for two pictures of Ajax and Medea. The fees given by pupils to the great masters were enormous, but the course of study in their studios was thorough. Protogenes

worked seven years on his picture of the hunter Jalyseus. We cite Leonardo's four years' work on the "Jaconda" as a wonder of patient elaboration. Four centuries have robbed it of its finest qualities, while after the lapse of more than twenty, the "Muse" retains hers—a striking contrast to the rapid destructibility or deterioration of modern pigments.—*Jarves' "Art Thoughts."*

France has lost two historical painters: Col. Langlois, the author of the Panoramas in the Champs Élysées, born in Calvados in 1789, studied under Girodet, Gros, and Horace Vernet; first exhibited battle-pieces in 1822, in which year he was appointed Aide-de-Camp to Marshal Gouvion Saint-Cyr, and made the campaign of Catalonia, gaining the rank of Major of the Etat-Major. From about the year 1833 he occupied himself almost entirely with the painting of panoramas, visiting Africa and the Crimea for his subjects; also several battle-pieces for the gallery of Versailles; gained a first-class medal in 1834, published several volumes of travels, and won the rosette of Commander in the Legion of Honor by his military services.—The late M. Monvoisin was born at Bordeaux in 1793, and studied under Pierre Guérin: he won the Grand Prix de Rome in 1822, and while at Rome married a young Italian artist, Domenica Festa. He painted many historical and religious works for the city of Paris and the State galleries and churches, the best known being "The Birth of the Virgin," for Notre Dame de Lorette; but the only picture from his hand which obtained celebrity was "Jeanne la Folle."

Irish Sepulchral Monuments.—The literature of Irish Philology and Art is about to receive a valuable addition in the extra or "Annual Volume" to be presented early in the summer to the Fellows of the Royal Historical and Archaeological Association of Ireland. The work is in demy 4to, profusely illustrated, and consists of the first portion of Ancient Irish Christian Inscribed Sepulchral Monuments in the Celtic language, ranging from the seventh to the end of the twelfth century. Miss Stokes has illustrated "The Cromleac on Howth" (published by Day) and the late Dr. Todd's "Description" of "The Book of Kells," and other ancient MSS. preserved in the Library of Trinity College, Dublin (recently issued by the Society of Antiquaries of London), and has undertaken the editing for the association of the drawings, made by the late Dr. Petrie, of these ancient inscribed stones, with the assistance, in the philological portion of the work, of the eminent Celtic scholar the Rev. William Reeves, D.D. The drawings have, where practicable, been compared with the originals, and many examples unknown to Dr. Petrie have been obtained.

Three Paintings by Meissonnier were recently sold in Paris at excellent prices. The first, "La Halte des Chasseurs," was bought for thirty-two thousand francs by an Englishman; the second, by an Austrian, for twenty-two thousand francs; and the third, a little thing called the "Vin de Cure," for nearly twenty thousand.

M. Malinowski puts forth a description of six abbeys, of the Cluniac order, that existed in Poland in the Middle Ages; M. Revon, an account of the ancient inscriptions in Upper Savoy.

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EDITOR'S NOTE.

With the present number the *ELECTIC* enters upon a new volume and a new year, and while the Editor feels that the best pledge he can give for the future is a reference to the past, he also feels justified in expressing his belief that the coming volumes will be more valuable, more interesting, and more adequately representative of the best aspects of contemporary European thought than any in the long series of the past. English periodical literature is every year becoming more comprehensive and more cosmopolitan in its character—it is gradually drawing to its ranks the best intellect of the nation—and with this vast field, and those of France and Germany, the *ELECTIC* has the current literatures of three countries from which to make its selections.

In commencing this new volume, the Editor would also express his thanks to his friends of the press for the cordial reception which they have extended to the magazine during the past year, and ventures to hope that the beginning of another may find him under the same obligations. The cheering and appreciative words which come to him through the exchanges are not the least encouraging of the rewards which follow upon his labors.

Our table of Contents this month must speak for itself, as we have space only to call attention to the leading article on the Early History of Man. This is a rare paper, which has attracted much attention in England, and discusses very lucidly one of the most important problems that at the present time are occupying the attention of scientific men.

The Publisher would invite special attention to the advertisement of Back Volumes of the *ELECTIC*, on page 6 of Advertiser.

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EDITOR'S NOTE.

MR. BEECHER is the most remarkable public man in America whose portrait has never yet been in the *ECLECTIC*, and we feel peculiar pleasure in presenting our readers this month with an engraving which we consider the best likeness of the great preacher extant. It is taken from a recent photograph, and has been executed by our artist with special care.

The most remarkable article, probably, in our present number is that which treats of "The Place where Light Dwelleth," from the *British Quarterly*. It is by the author of "The Language of Light," which formed one of the most noticeable papers in our last volume, and is a singularly lucid, comprehensive, and able analysis of the recent discoveries concerning the constitution and phenomena of the sun. Of a similar character, though in a different field of science, is the article on "Geological Theory in Britain." It traces the history of Geological science, marks the rise and fall of the different schools, and presents a powerful argument in favor of the school at present in the ascendant, which holds to the theory of continuity of development. "Colors of the Double Stars" also contains some curious facts concerning those members of the sidereal system.

The paper on "Chatterton" is the most satisfactory sketch we have seen of the "glorious boy," whose very name can scarcely be spoken without emotion, and "The Princesse des Ursins" is one of those gossiping historical articles which seem culled from the very garden of Romances.

"Lectures on the Science of Religion" are interesting enough of themselves, and we print them because they will afford our readers some fragments at least of that vast and curious lore which Professor Max Müller has accumulated from his studies in Comparative Philology. If not satisfactory to all, they cannot fail to be suggestive.

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